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CONSTANTINOPLE THE COLORFUL

BY GERALD K. GEERLINGS

Abroad *on the* Woodman Travelling Fellowship, University *of* Pennsylvania, 1924-1925

Illustrated by Sketches by the Author

OF all stages for the architectural imagination to conjure up and put into play a rich pageant, probably none offers more riots of color, streets of gaiety, miles of "bazaars," thousands of varied costumes and curious customs, nor such a variety of architecture than Constantinople. Here as no other place has antiquity survived with the modern, where old winding streets made only ample enough for a camel train are now impassable with flying autos, where the Moslem in his fourth century desert dress sells twentieth century American hairpins, where the architecture of Justinian serves the worship of the new Turk; in a word, where the East has joined West and the Old lives on with the New.

The old Constantinople of the sultans has been robbed, we are told by the American colony, of much of its color and romance by Western clothes and the new Republic. But there is still much left to imbibe and enjoy of the very old and the less old. For the architect it has a number of interests, some archaeological, but some also in application to his modern architectural problems. Of course, it has that even in the books but in the actual Constantinople, the colorful, the noisy, the Oriental, the European, the Cosmopolitan Constantinople, it is the City of a Hundred Lessons and a Thousand Fascinations!

Someone has aptly said that the New York zoning law has done more for making our American architecture distinctive and interesting than any other single factor. Other cities have followed

ST. SOPHIA

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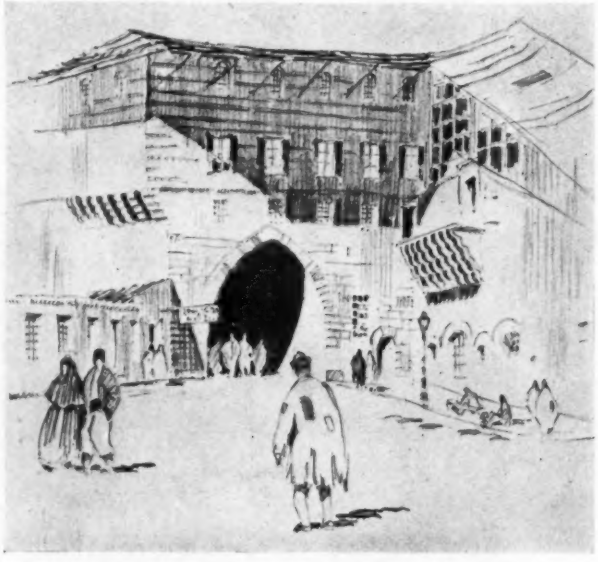
THE PIGEON MOSQUE

with zoning ordinances with the result that the skylines of our buildings have come to be one of the main exterior problems. Design now concerns itself chiefly with mass. The masterly unrivalled Bush Terminal was one of the pioneers. The award to Goodhue for his Nebraska State Capitol showed what a national jury thought. So it has gone. The Shelton Hotel of New York City is one of the last of the great numbers of buildings which are distinctive because of mass as well as the common sense utility behind them.

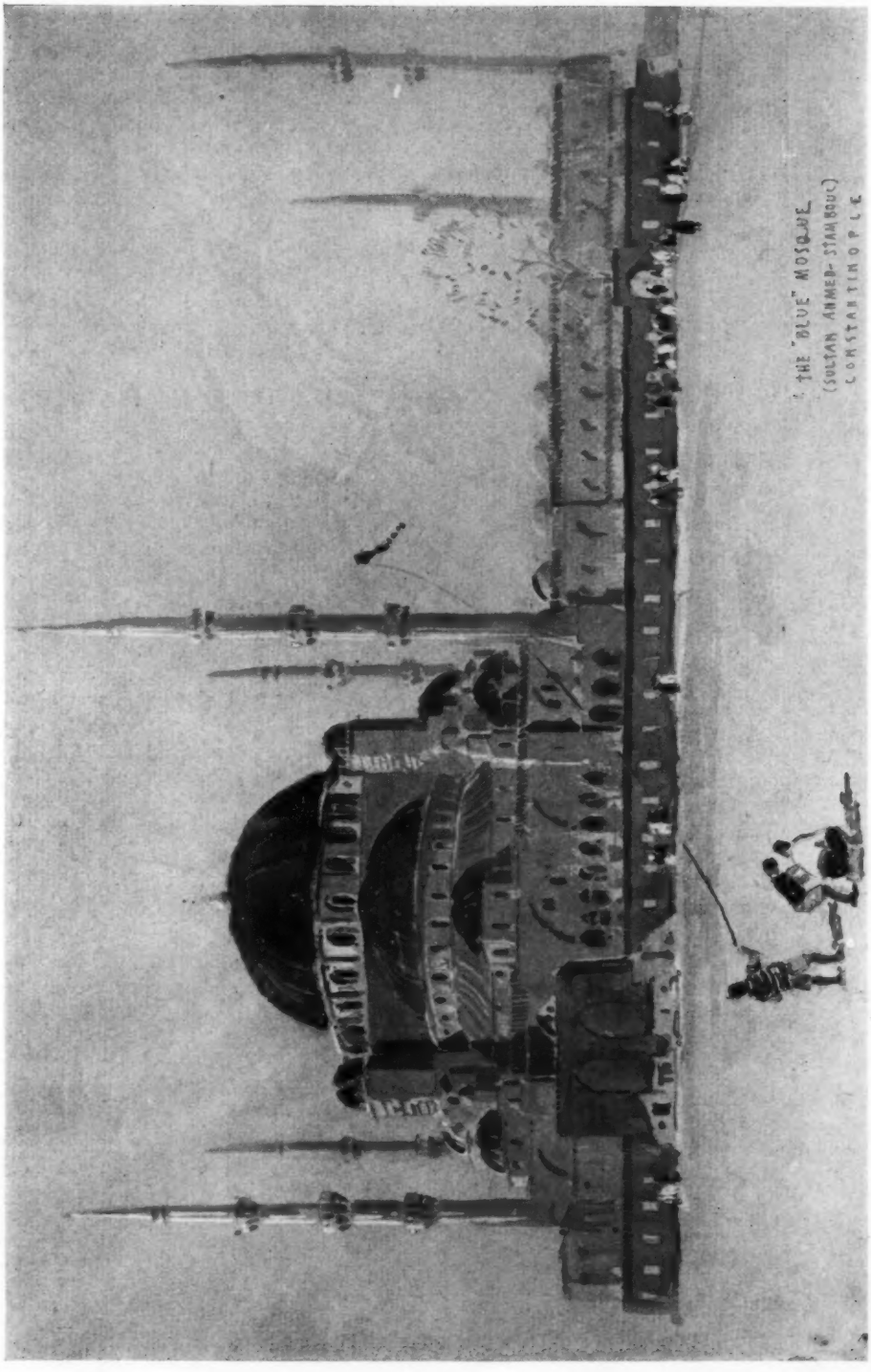
The various Constantinople mosques have such a variety of interesting masses, piled up with so many different elements, dependent upon site or size, that they should offer some suggestion to modern design. The sides of some of the mosques rise up sheer from the face of a high wall with a restrained, simple, flat wall treatment which might readily invite a solution to an industrial problem. Others pile up with one plane rising above the setback of another, as though they were libraries, museums, court houses conforming to a code for a "B, 2 times height district" in New York City. Other mosques are less rambling and more contained, with a dignity or verticality which might supply no end of ideas for no end of schemes. Applying the mass of a mosque to an American building would require careful handling and much serious thought. Perhaps it could not be done. But the basic principles of design when analyzed should have something for the twentieth century with its concrete both cheap and widely used. The search for an honest expression of structure which has directed considerable attention to recent Scandinavian and German buildings might also be well repaid by the study of compositions and masses of the Constantinople mosques.

Without question the mosques have succeeded in being distinctive. Along the skyline of Stamboul the outstanding features are the low domes guarded by gracefully tapering sentinel minarets. That in itself is something worth while thinking about—a mosque always looks like a mosque. You cannot mistake a shrine of Moslem worship for anything else but that, whereas in our American churches it is too often impossible, due to the persistence of hackneyed motives, to distinguish any difference between a church, a court house or a library. Something must be wrong with the design.

The interiors of the mosques are built on a number of excellent ideas. The walls, for example, are generally treated in one of two ways, the simple marble revetment of St. Sophia or panels of beautifully designed and colored tiles. We have become so accustomed to Renaissance pilasters and arches that they are almost taken for granted. We should be able to think differently occasionally and depart from the formula. It is good design, good sense and good economy to concentrate interest the way the simple revetment does to the arches in Sophia. In the other mosques where tile is employed it is worth



ARCH AT MOSQUE VALIDÉ SULTANE



THE BLUE MOSQUE (SULTAN AHMED, STAMBOUL)

more than a passing thought to consider the possibilities. Instead of doing all our interior architecture in shades of gray, with but negligible color in our clothes to cheer up our surroundings, colored tile would be not only more imaginative but perhaps cheaper as well. The mosque tiles have been well designed, well colored and well fired. They can be washed. It is safe to guess that the tile have required less overhead in repairs and redecorating than our imitation stone and plaster used in the usual drab pilasters, capitals, arches and swags.

The lighting of the mosques has suffered with the popularity of electricity. Instead of thousands of little oil lamps flickering away, making the domes seem infinite in height and mystery, there are now glaring, unfrosted electric bulbs in some of the many unused oil lamps. Naturally it looks badly. But before the advent of the harsh electric light the effect must have been highly successful. From the dome hung countless chains, each spreading out into about twenty-five small lamps. These hung low, only eight feet or less from the floor, shedding their light on the warm colored, pastel-shaded prayer rugs. The detail in the dome obscured, with light catching only an occasional chain as it disappeared in a black mystery, thus confining the subdued, warm light near the floor, should offer something of a suggestion to us. The numberless verticals in chains give a sense of tremendous scale, so much so that the St. Sophia dome appears to the critical observer a great deal larger than does St. Peter's in Rome.

After seeing churches all over Europe the architectural eye cannot help but regret that interiors are so cluttered up with chairs and benches in disorder, that representations of figures are so often hideous, that baroque altar pieces and heavy, offending projections of all sorts should display bad taste to the fullest. Without hardly exception one must apologize for this, that or something else and try to appreciate the good by forgetting the bad and mentally eliminating what generations have done to disfigure that which originally was beautiful. In the mosques a first and lasting impression is that of simple dignity. No chairs scattered promiscuously about, no ugly intervening coro, only an unbroken sweep of beautiful oriental prayer rugs, mosaicing the floor with soft, warm pastel shades. No agonized looking figures or paintings depicting the horror of death, but harmonious color on the walls in tile or stone, suggesting rather the beauty in life. An admiration cannot be quelled for these followers of Allah in choosing to worship in an edifice where there is only a solemn dignity, a sanctified simplicity where dwells the spirit of their God. Presumably they do not feel the call to represent a spirit with a host of ugly representations as we do. And in that reverent atmosphere of the Moslem mosque your Christian mind cannot but wonder that if our God have an architectural preference, perhaps He is a bit jealous of Allah.

In our public buildings we seldom think much

STREET SCENE, CONSTANTINOPLE

about the floors. We specify them to be cement or terrazzo and let it go at that. In the case of marble we check shop drawings for jointing. But we can learn something of the psychological effect of the soft, inviting colors of a mosque floor.

A HOUSE NEAR ST. SOPHIA

Not that we should consider importing rugs by the wholesale or attempt to imitate them, but when there are funds to do something with a floor, rather than cut up a uniform colored marble or select a dead looking linoleum or tile, it would be worth striving for a more cheerful, interesting and warm effect by following the lead of the Mohammedan prayer rug. We have as much right to enjoy color as the Turk, surely. The trouble is, we have acquired the black and white habit.

One more phase of the mosque, the forecourt. Usually there is an ample square or rectangular court surrounded on all sides by a vaulted arcade, one of these being the porch to the mosque. Sometimes there are cypresses, big ones. In the center of the court is the ablution fountain, circular or octagonal, covered by a small dome. Little jets of water run from simply but well designed flat wall reliefs. Before each little stream is a Turk, obeying one of Mohammet's five precepts, washing face, hands and feet before entering his mosque. His turban, beard, cloak, trousers, sash, socks, shoes all contribute to the color and sparkle. We cannot have all that but the running water idea is a good one. It means birds, plants, moss, the sparkle of the sun and wet coolness on a hot day. It makes an agreeable sound too. We don't get a chance at enough real estate very often in order to build a forecourt, but when we do and if we do, should the result be as happy as the manner in which the Turk has used his opportunity, we shall have achieved something.

The Turk has followed the general precedent of St. Sophia pretty closely in his mosques and in them has developed his best architecture, almost to the exclusion of everything else, it would seem. Unfortunately he missed the golden opportunity at the opening of the Golden Horn on the old Seraglio grounds, where twenty-one successive Sultans for over three hundred years built their new palaces or the whims of the favorite Sultana. As a result the splendid natural acropolis has now no great architecture or lasting monument to record its former magnificence. The buildings were light, extravagant creations, studded with gems, inlaid with tortoise shell, mother-of-pearl or sometimes ivory. Only a few remain as shabby shadows of the Oriental luxury and nameless crimes they once sheltered. One sun room sort of building still exists in good preservation, the Bagdad-Kiosk built in 1638. It overlooks the Golden

MAIN GATE, SERAGLIO POINT

Horn with Galata and Pera opposite, and on the other side of the Bosporous, Scutari with its lovely colored hills behind. For the architect with an eye alert for something he can use, the rich revel of upholstery and embroidery around the perimeter of the room concerns him for a moment in imagining the fairy tale past. But the walls rivet his attention because they are particularly resplendent with azuelos, colored tile, which could scarcely be more perfectly designed or more exquisitely colored. Turquoise and cerulean blues, verdigris and emerald greens disport themselves fantastically on a cream ground. The room is

square with the corners cut off to accommodate small secret chambers. The doors to these are of intricate Saracenic design, recalling similar patterns of the Alhambra, and fashioned of darkened cedar, inlaid with tortoise shell and mother-of-pearl. It is a room which has its modern possibilities. Perhaps a gay hotel grill or tea room with fountain and fish, flowers and flutes. Or perhaps a sun room on an expensive residence for the ever expected million dollar client.

It is unfortunate a master designer did not conceive and execute a big scheme for Seraglio Point. Perhaps the new Republic will employ the marvellous site in a fitting manner. If they should there is not much to demolish except the kitchens, which ironically enough, are now the most imposing looking structures with stunted cylindrical chimneys escaping from conical domes. The main gate (sketch) is also in good preservation. These, with various other buildings, have certain features of color, texture and materials applicable to modern work. Unfortunately of course, qualities in these we may admire and conscientiously strive to attain, yet find to our disappointment that time alone can produce an equally mellow effect.

THE HILL TO THE GRAND BAZAAR

To begin with, the Greek and Byzantine were not as afraid of color as we are. Neither was the Turk. Masonry was run up of red brick and light gray or buff limestone, an eight to ten inch course of the latter alternating with a series of three of these brick courses. The voussoirs in arches always alternate between a gray or buff with a red. At a later period stucco seems to have been the vogue, from ochre to cadmium in color. This was applied over the old masonry described or on new walls of rough masonry or rubble. Where the plaster has cracked off, an abundance of "texture" goes begging. The very quality about the stucco which is most admirable is precisely that which is lacking in most of our usage, making our stucco building exteriors look as uninspired as smooth bathroom walls. Trowel marks and a general variety on the surfacing of these Constantinople walls give them the appearance of having been done by interested craftsmen, who were not intent upon producing the bizarre effect of the modern dilettante interior decorator, but rather with only sufficient variation to give the wall character. High up on St. Sophia are bands of dull red, either painted on the stucco or produced by colored plaster. Over many of the doors are remnants of decorations, often of a favorite zigzag black motif. These colors may once have been harsh, but now are mellowed to soft shades and sometimes even disappeared. But always in some form there is color!

The amount of wood construction in houses is amazing. Whole streets are built of wood. Rather unexpected and certainly unfortunate under the absence of proper fire control, as entire charred areas testify. But the bigger surprise, which seems to be a monstrous assertion or a fault of the vision, is what appears to be Connecticut Colonial architecture. The sketch of the old house near St. Sophia is typical of wood structures over all Stamboul, with one floor projecting over the one below, and supported by long curved, graceful brackets. The siding is laid about four inches to the weather, unpainted. It is too weird to believe, to see leaning out of a small casement window nestling under a Nantucket overhang, an Arab's brilliant turban and "Mashlok." It must be a Colonial masquerade. Yet, it is the unbelievable Constantinople!

The "bazaars" are an institution of their own. The Grand Bazaar is said to have 4500 shops jammed along its endless labyrinth of vaulted halls. Stalls of every description having every thinkable article sold by every species of human being of every nationality crowd these corridor-like structures. In plan the "bazaars" are irregular but in general, long passages intersect at right angles, leaving small courts perhaps eighty feet square. The passages vary from forty to perhaps sixty feet in width and twenty to thirty feet to the spring of the groined vaults. The arches between the groining and the vaults themselves are usually in a buff and much dirtied stucco, with simple but interesting black ornament breaking up the monotony. Perhaps there are no documents of the "bazaars" but if ever one had to design a municipal fair or a market place, the Constantinople "bazaars" might have an idea or two to offer. Only Allah knows what happens in

the little courts. The sun comes in through small round windows above, and occasionally some fresh air. Old men crawl through small holes below which lead to the courts. But that is all one can find out.

The exterior of the "bazaars" is distinctive principally for its skyline. The groined vaults are not hidden by a superstructure and roof, but each is responsible for a low dome, with the result that above the cornice line appears to be a parade of gigantic, inverted "cup-cake" tins. The "bazaars" are enclosed by thick walls, with a great abundance of texture. The lower two-thirds of surface has flush arches marking the spring of the vaults on the inside, a small circular window or two, and then nothing but plain surface above to the simple coping course. Usually the masonry consists of an alternating stone course with a series of several brick courses.

Stamboul, the oldest part of Constantinople lying on the peninsula formed by the Golden Horn inlet and the Sea of Marmora, has streets of the greatest human interest. Rambling, half-tumbling houses of not more than two stories, of all kinds of building materials and color, some well built and some not, have shops in the first floor protected by ragged but colorful awnings or shelters. They look rather like chubby, tattered, jostling ragamuffins, good-natured even after a long lively night. Vines bridge the distance from one side of the street to the other, to cheat the sun of some of his toll in the summer and incidentally to cast a fanciful pattern of shade on the uneven paving. Here everything saleable is displayed and hawked, everything movable is carried on men's bent backs, every able and disabled person is buying, selling or begging. Every known color is there. Green vines; dark, tattered awnings; cadmium and vermillion fruit; dark and light green vegetables; red fezzes, lavendar and white turbans; women in black; men in red, orange, purple and white. Brilliant sun and purple shadows, luminous shade and colorful reflections all changing, reflecting and refracting light until the dazzle is too much, too indescribable.

It is Constantinople.

Not so much for the architect, these street scenes, unless he has a fair and bazaar to do, a temporary decoration to design or a stage set on which to collaborate. Then what a feast of ideas, what a marvellous feast! Nothing except actual experience can give an adequate conception of the street life, where one is good-humoredly jostled, and hounded to buy the whole city from the most engaging lot of brigands that ever held up a tourist. But it is a good show.

Constantinople is worth the price even though at present in dollars the cost is about what it is in Italy, perhaps ten per cent higher. Nowhere such tender lamb, roasted on small spits before a fire, with the bill reckoned by the number of sticks-worth you have eaten. Nowhere else will the architectural appetite after a day of wandering and sketching be so well appeased by fairyland cakes, candies, sweets of unknown acquaintance or unparalleled quality as here. If he be interested in music he can hardly find a more curious type than produced by the nasal café singers, who wail in an Allah-forsaken manner which can be fitly accompanied only by their weird instruments. But it is a rich pageant, where there are more actors and masqueradors than on our own Fifth Avenue, with more languages and costumes than Babel itself could have had.

It is life to see Constantinople in the sun, to explore about when the local color of each costume, each tile and brick sings its merriest. But it is the culmination of all to sail out in the harbor in a golden sunset, when the Golden Horn is gold and Stamboul a soft cerulean against the clear sunset sky. No detail, just color and the silhouettes of the mosques — St. Sophia with its four minarets, the Blue Mosque with its family of six, then the Pigeon and Sulemanieh the

STAMBOUL, ACROSS THE GOLDEN HORN

Magnificent and the rest, interrupting the flaming sky with their noble masses and giant yet graceful spikes.

It expresses and sums up what you have seen in detail — the outstanding mosques against the horizon, incentives for solutions with a fresh thought. Then all the suggestive blue of the hill, made up of a myriad of subtle shades—now only one vast memory.

But what a memory and what an adventure! The place where East has become West, where the Old and the New live together and you feel that God is good, and like Allah, must delight in color!

COMPETITION FOR THE RECONSTRUCTION OF THE MOSQUE OF AMROU, CAIRO

RAMSES CHAFFEY, Consul of Egypt, 103 Park Avenue, New York City, wishes to bring to the knowledge of those concerned the following:

By order of His Majesty the King of Egypt, a competition is instituted by the Egyptian Ministry of Wakfs (Ministry of Pious Donations) for a project of reconstruction of the Mosque of Amrou, in Cairo, as it used to be in its period of greatest splendour. This competition is open to architects of all nationalities.

Application must be addressed, with precise indication of competitor's address to H. E. The Under Secretary of State, Ministry of Wakfs, Cairo, Egypt. These applications can also be addressed by cable to that Ministry, thus:—WAKFS, CAIRO.

The Ministry of Wakfs will forward gratuitously a copy of the conditions of the competition. The prizes attributed to the project are:—

First Prize (Egyptian Pounds)	2500
Second Prize	1000
Third Prize	500

These prizes are subject to the conditions stipulated in Article II of the contract.

The Consul will be glad to put his services at the disposal of architects who might be interested in this project.

A PROPOSED VOLUME OF RAFFLES DAVISON'S WORK

The Editor,
THE AMERICAN ARCHITECT:

THE enclosed letter which I would ask you to be good enough to publish, bears, as you will observe, the signatures of many eminent architects in this country.

J. Alfred Gotch is the President of the Royal Institute of British Architects; E. Guy Dawber, the President Elect; Arthur Keen is Honorary Secretary; Sir Reginald Blomfield, Sir Aston Webb and Sir Edwin Lutyens represent the Royal Academy; John Keppie is President of the Incorporation of Architects in Scotland and an Associate of the Royal Scottish Academy. The names of Professors Adshead, Reilly and Richardson are generally familiar here.

Should you see your way to include a note in your journal drawing attention to this letter I should be grateful as we are most anxious to get the support of the American architects to insure the publication of a volume of Raffles Davison's sketches. American architects last year had an opportunity of seeing some of these at the exhibition which was held under the auspices of The Architectural League of New York.

Yours faithfully,
HERBERT WIGGLESWORTH.

London, England.

The letter referred to is as follows:
The Editor,
THE AMERICAN ARCHITECT:

THE recent exhibition in the R.I.B.A. Galleries of sketches by Raffles Davison brought a host of visitors who marked their appreciation of the practical value of his handiwork by purchasing all the drawings and many of the sketches.

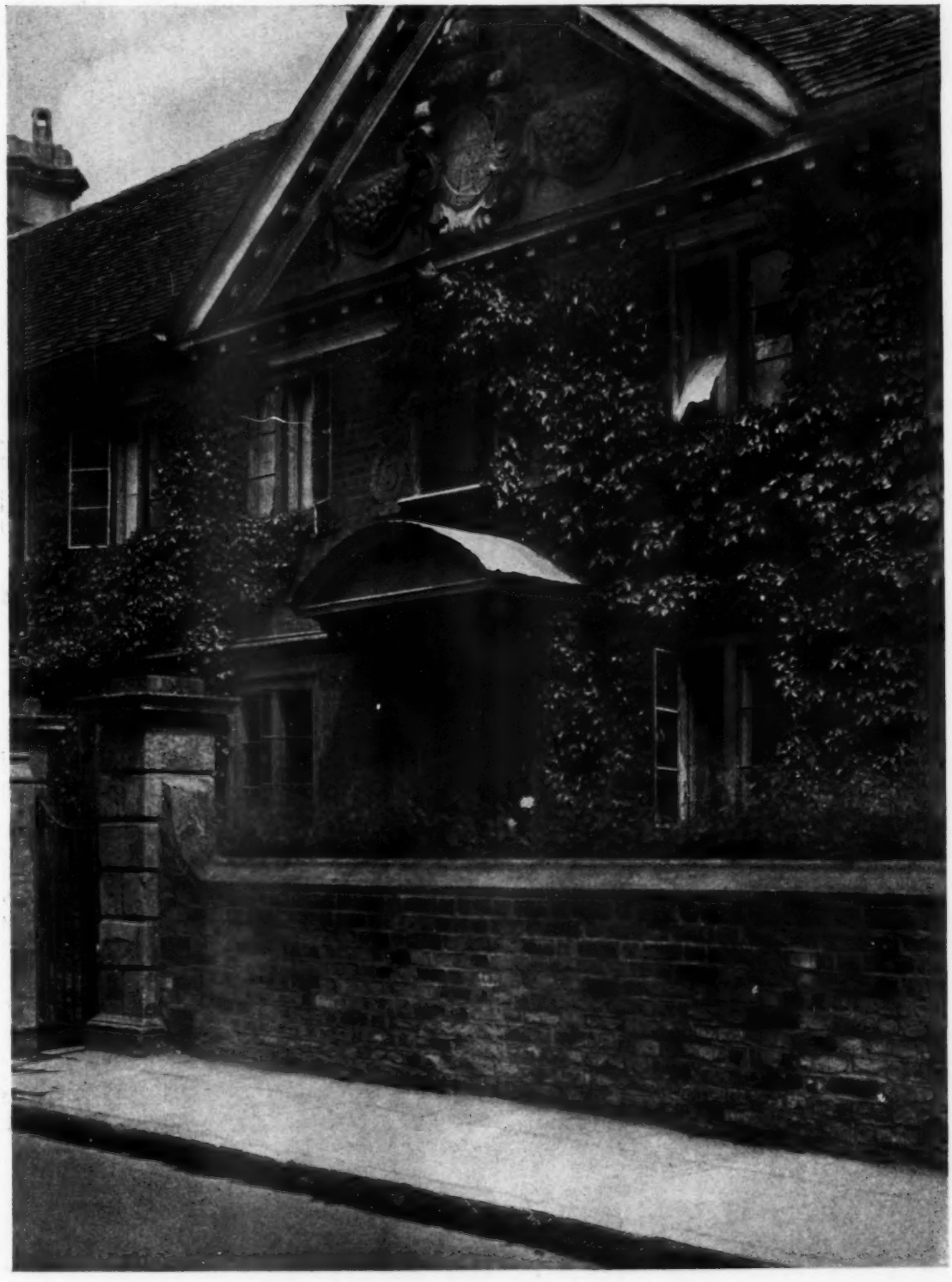
We are not surprised at the interest thus displayed, for Mr. Davison possesses an instinctive sense of beauty, and has by his acute observation preserved for us an accurate record of British craftsmanship, ancient and modern.

Though most of his drawings and sketches may have been published they have never been brought together as one collection, and it seems to the subscribers of this letter that a permanent record of this kind would be of great value and interest. Such a publication would, in addition to its inherent merit and beauty, help to explain to posterity the outlook which inspired and governed the work of the architects of past generations.

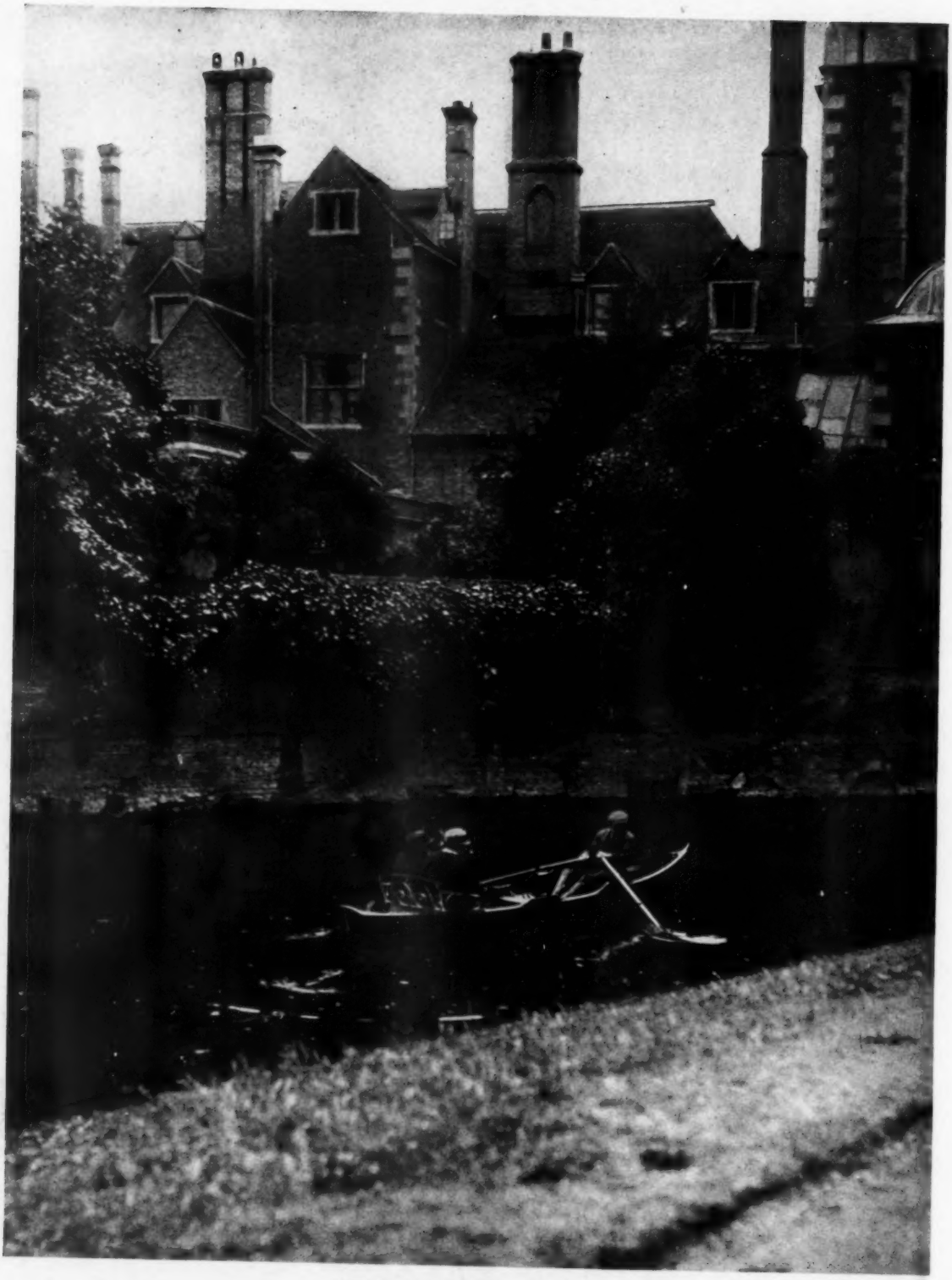
In order to ascertain the support likely to be accorded to this project, we should be glad to have the names of proposed subscribers.

Yours faithfully,
(Signed)

S. D. ADSHEAD, REGINALD BLOMFIELD, EDWIN COOPER, E. GUY DAWBER, HENRY M. FLETCHER, J. ALFRED GOTCH, ARTHUR KEEN, JOHN KEPPIE, EDWIN LUTYENS, C. H. REILLY, A. E. RICHARDSON, ASTON WEBB, MAURICE E. WEBB, HERBERT WIGGLESWORTH.



"WORKING PHOTOGRAPHS"
ONE OF A SERIES MADE IN ENGLAND BY
JOHN RUSSELL POPE, F. A. I. A.



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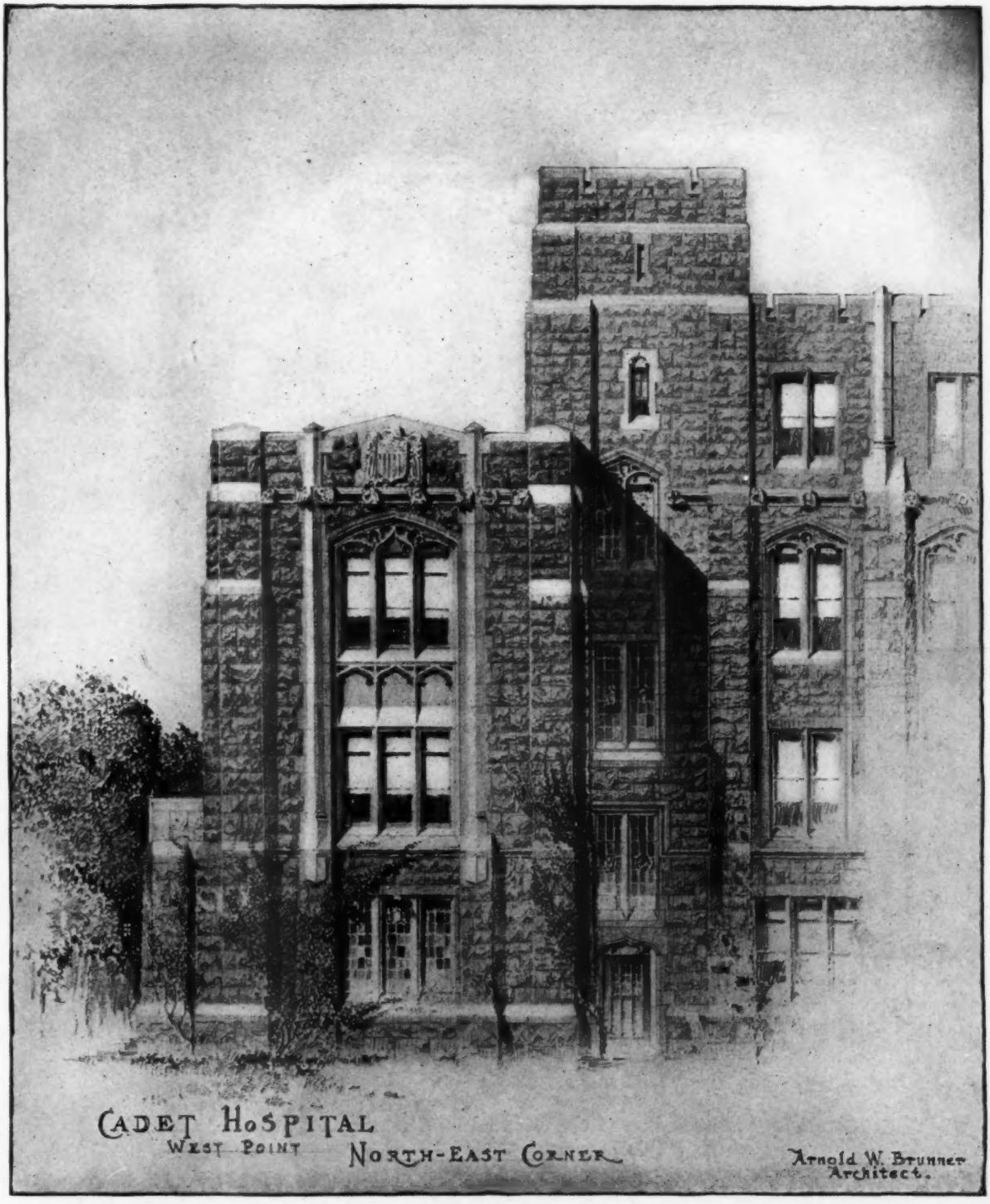
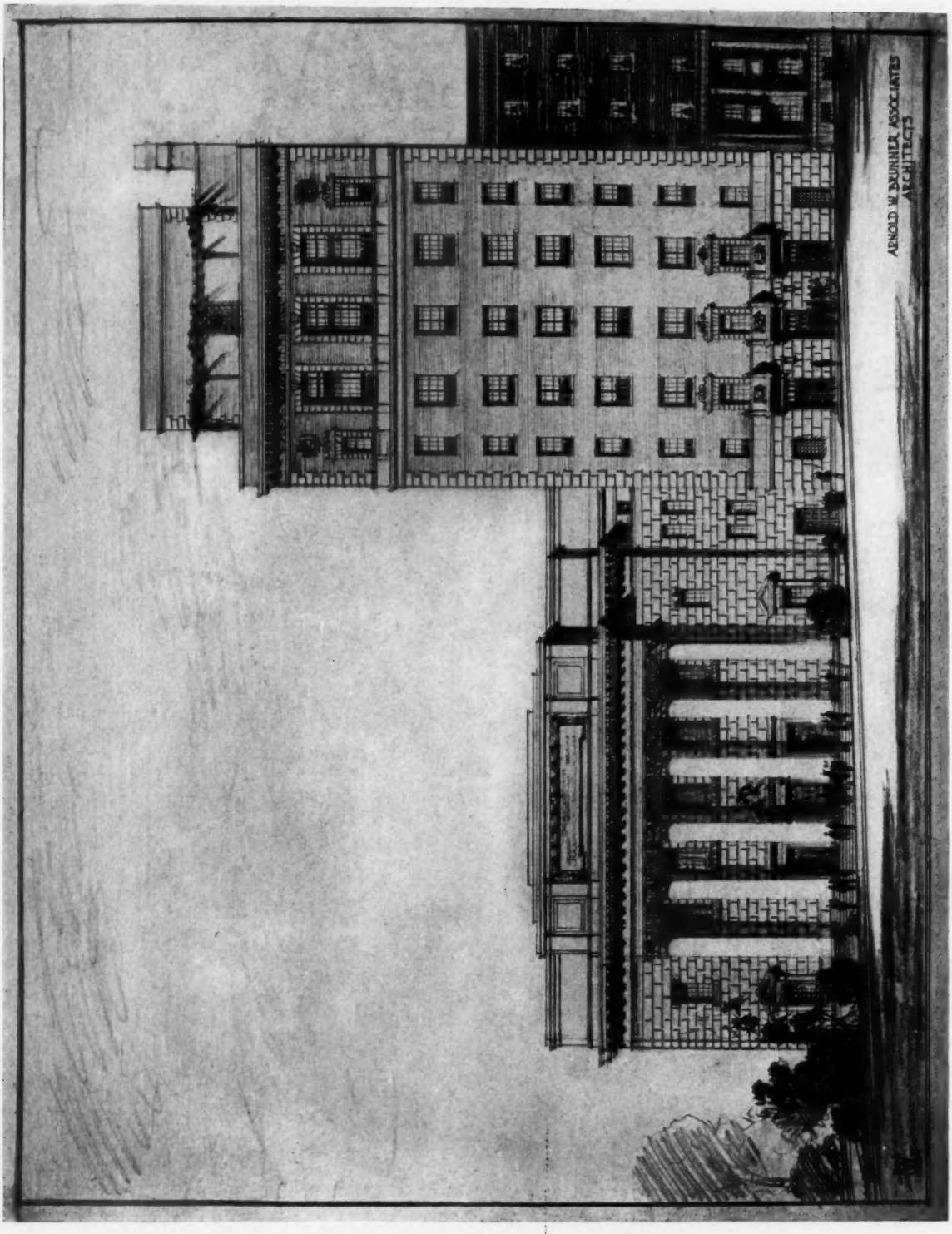


OFFICE SKETCHES

FROM THE ORIGINAL DRAWING BY WILLIAM GEHRON OF ARNOLD W. BRUNNER ASSOCIATES, ARCHITECTS



OFFICE SKETCHES

DESIGN FOR COMMUNITY HOUSE, UNION TEMPLE, BROOKLYN, N. Y.

FROM THE ORIGINAL SKETCH BY WILLIAM GEHRON OF ARNOLD W. BRUNNER ASSOCIATES, ARCHITECTS

INTERIOR DECORATION *in* GREAT BRITAIN

A communication *from an* English reader

AFTER a considerable "all paint" period in which all the effects were obtained with paints, enamels and water paints there is a noticeable tendency to increase in the use of wall papers. The manufacturers seemingly have learnt the lesson during the "all paint" phase, for an almost endless variety of textures and low toned pattern effects is available for the decorator. Again with the large number of bungalows and similar dwellings going into use there has come the wall board in place of plaster, which with its panelled effect is capable of new methods of treatment.

The economic conditions of the country have brought us the small house in which the living room does duty for the drawing room, morning room and library of the spacious residence occupied by our parents. Thus a new problem in decoration has to be solved. It was for this purpose that we saw some few years back so much distemper, water paints and flat enamels in use. The walls, being in broad sheets of a single color, showed the marks of wear badly. They became chipped in many cases and what was, when new, a pleasure is today an eyesore which is turning people back on wall papers daily.

So wall papers can be said to have declared war upon the painted wall. The makers are well armed. They have found that fragmented light and shade, with mixed colors in the background, pleasantly withdrew it from the plane of the hanging pictures and at the same time gave the effect of space to the room. They had found what many consider the perfect picture background. They made their papers accordingly and the national and other picture galleries came over to their side, as the decoration of many of their walls now shows. Outstanding amongst these papers are the reproductions of Japanese grass cloth. Once again this beautiful material is coming from Japan, and may be seen in use in the wall paper showrooms of the West End of London. But there are imitations of good quality for those of more slender purse.

There are in addition scenic panels, wall papers with patterned backgrounds in many colors, dimly showing through a cloud of over-printed neutral shade. These papers are indeed something new and they serve two purposes. They provide a perfect background and satisfy in an artistic manner the natural desire to fill up blank spaces. Reproductions of patterned hangings are now correctly used with the style of furniture and decoration with which their originals were associated, such as flock papers in Genoese velvet designs for use with Queen Anne furniture. Clever reproductions of Chinese and French scenic panels fill us with desires to banish our pictures to the cellar and to harmonize our rooms with these well designed scenes. These decorations are made up to 25 feet in width without repetition and as many as 3,000 blocks were used in the making of the most elaborate. There are also many other reproductions that possess great qualities, such as the Cordova leathers in rich emboss, and chintzes, English, French and Italian, as well as Persian in so many colors and so well printed that by comparison they seem finer than their originals.

Then there are the historically important works of Walter Crane, William Morris, Voysey, and others of their schools. The Voysey patterns are essentially English: their spirit is akin to the Gothic. Moreover many wall papers are now printed in "fast-to-light" colors while some are even washable, though they look like finest silk. The new designs are doing much to forward the use of wall papers in the decoration of English homes today.

The new materials being used in the construction of houses are, of course, causing considerable modification both in the materials and methods of application so far as paint work is concerned. Concrete, asbestos, steel and the like all require different methods of treatment and in general use there are now a great number of compressed air paint spraying machines where large surfaces have to be treated.

There is a new vogue in furniture. The Jacobean style is going entirely out of fashion now and painted furniture is again appearing in the leading drawing rooms. The highly ornate pieces which we associate with the 18th century are not being adopted. The preference is for richly colored woods decorated with only small medallions or placques in color paints. Flowers and geometrical designs are the most common designs for these painted parts although in extremely high class work there is a certain amount of figure work. This is not, however, at all general owing to the enormous prices commanded by capable artists. Certain suites of furniture I have seen recently in drawing rooms have been painted in colors to match the decorative work of the room itself.

Such suites of furniture, being specially treated to match a decorative effect, as is common practice, may cost some hundreds of pounds so that when one declares that this is becoming a vogue, it must be understood that the vogue does not extend far beyond the most fashionable quarter of the metropolis.

A. Jacob, London, England

FROM THE ORIGINAL SKETCH BY WILLIAM GEHRON OF ARNOLD W. BRUNNER ASSOCIATES, ARCHITECTS

COMPETITION *for* THE NEW YORK STATE ROOSEVELT MEMORIAL

AFTER a State wide competition beginning December last, the Trustees of the New York State Roosevelt Memorial selected John Russell Pope of New York City to prepare the design and plans for the Memorial to be erected to the memory of Theodore Roosevelt on Central Park West and Manhattan Square, New York City.

The Trustees in their deliberations considered seventeen architects who were recommended to them by a Commission named by the Governor and Legislature according to an Act creating a Commission for this purpose in 1920, to compete in designing what will perhaps be the most important building which the State has erected.

Owing to various causes and declinations to compete the list finally invited by the Trustees to compete narrowed to the following eight firms:

J. H. Freedlander, New York City
Gordon & Kaelber, Rochester, N. Y.
Edw. B. Green & Son, Buffalo, N. Y.
Helmle & Corbett, New York City
H. V. B. Magonigle, New York City
John Russell Pope, New York City
Trowbridge & Livingston, New York City
York & Sawyer, New York City

Arnold W. Brunner was at the outset selected by the Trustees to act as Professional Adviser and prepare the program of competition according to the rules of The American Institute of Architects. On the death of Mr. Brunner, Charles Butler was selected to serve with the firm of Arnold Brunner in the capacity of Professional Adviser.

Approximately two months were allowed to the architects for the preparation of their plans.

The Trustees selected according to the program as a Professional Juror, William Richard Kendall of the firm of McKim, Mead & White and the competing architects selected Milton B. Medary, Jr. as their representative.

The Jury that passed upon the designs was:

Henry Fairfield Osborn, Chairman of the Board of Trustees,
Peter D. Kiernan, of Albany,
Mrs. Douglas R. Robinson, of New York,
Chauncey J. Hamlin of Buffalo,
Charles W. Flint, Chancellor of Syracuse University,
Mrs. William H. Good of Brooklyn,
William Richard Kendall, architect,
Milton B. Medary, Jr., architect.

Unfortunately Breck Trowbridge, one of the chosen competitors, died only two days before the competition began and consequently as the competition was conducted for the selection of the architect, the jurors could not consider Mr. Trowbridge as among the list of architects.

The award of the jury was to plan No. 6, submitted by John Russell Pope.

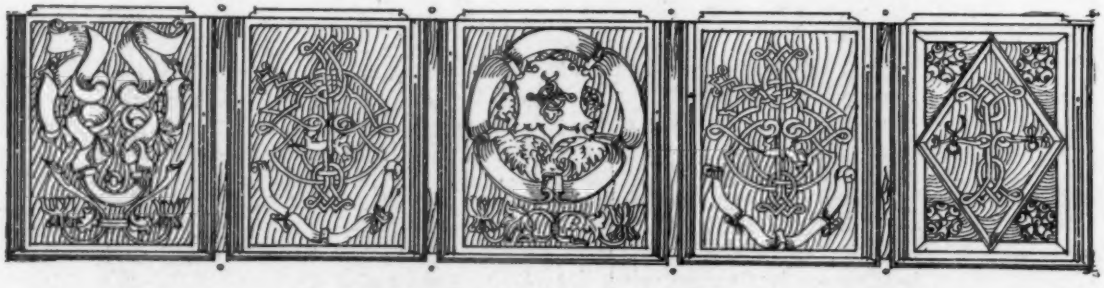
According to the program the solution of this problem must be solved by incorporating the following features:

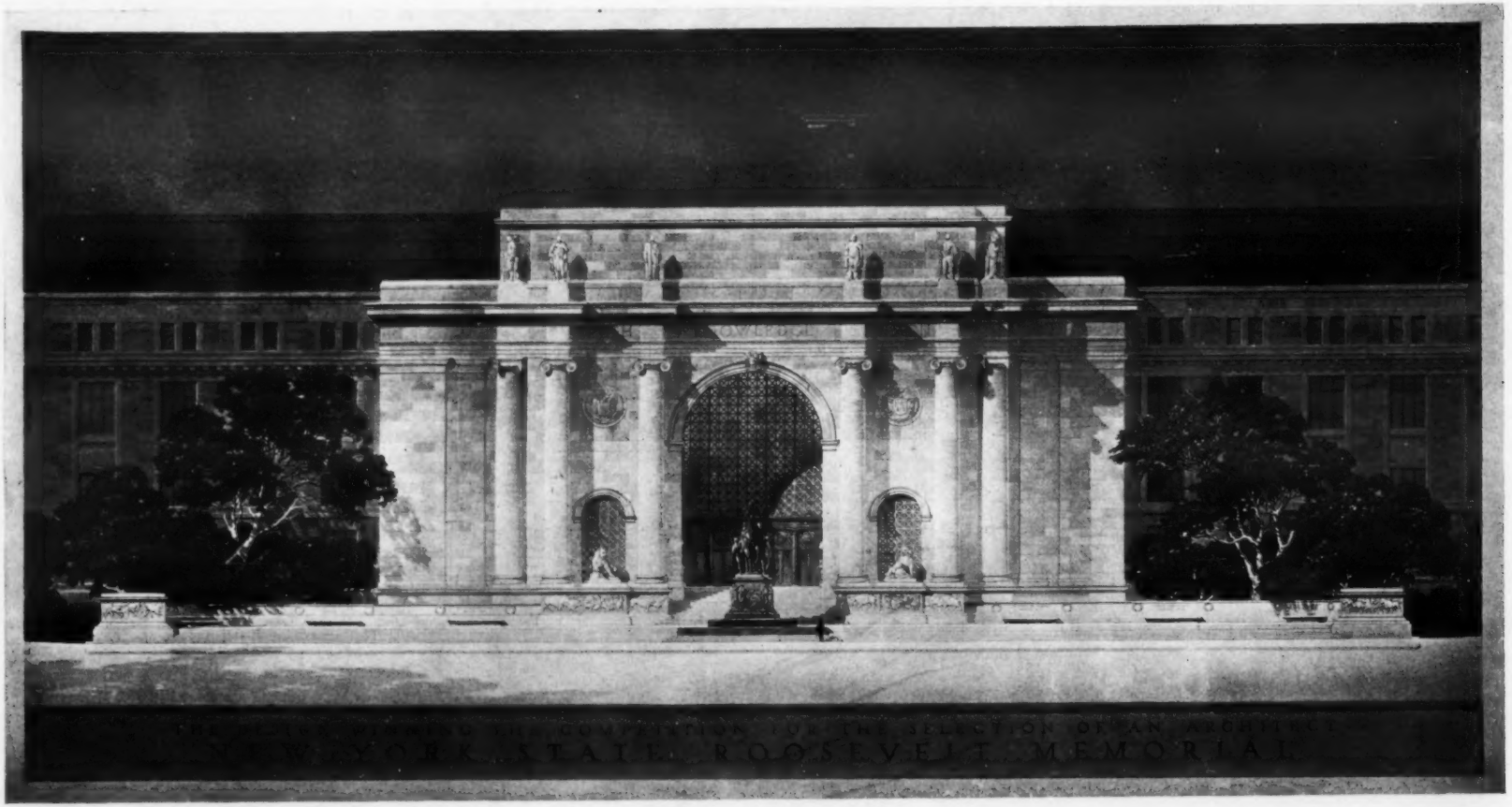
The design should symbolize the scientific, educational, outdoor and exploitation aspects of Theodore Roosevelt's life rather than the political and literary.

The design should be consistent with the dignity of the Empire State and reflect the National and international influence of Theodore Roosevelt.

The Memorial should be harmonious with and embody the ideals, purposes and plans of the American Museum of Natural History to which Theodore Roosevelt devoted the early and closing years of his life.

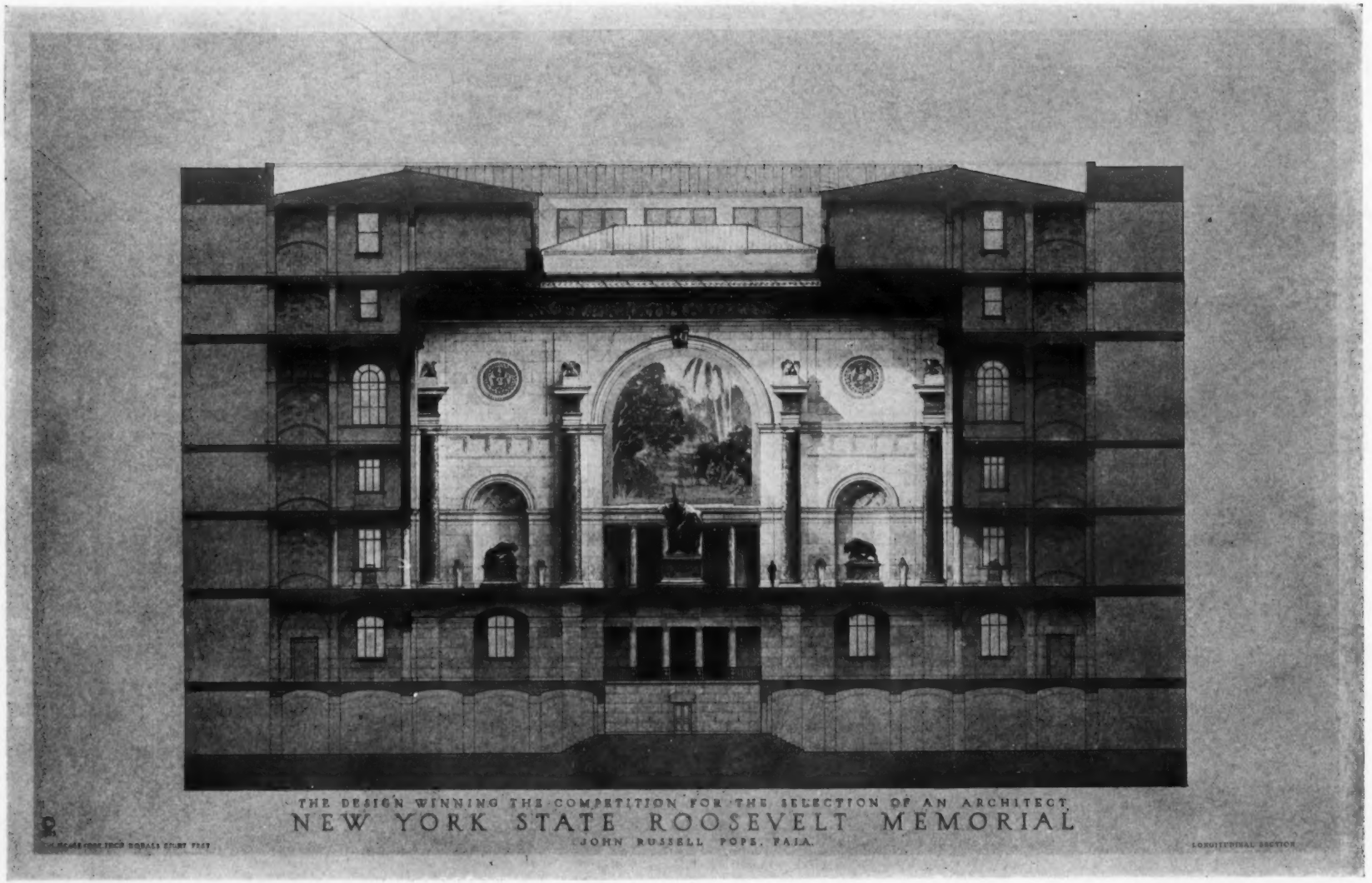
The Memorial should provide not only for visitors from the City and the State but should be so planned that it would also become an integral part of the school and public educational system of the State, and likewise form an extension to the educational work of the American Museum of Natural History in the City and in the State.





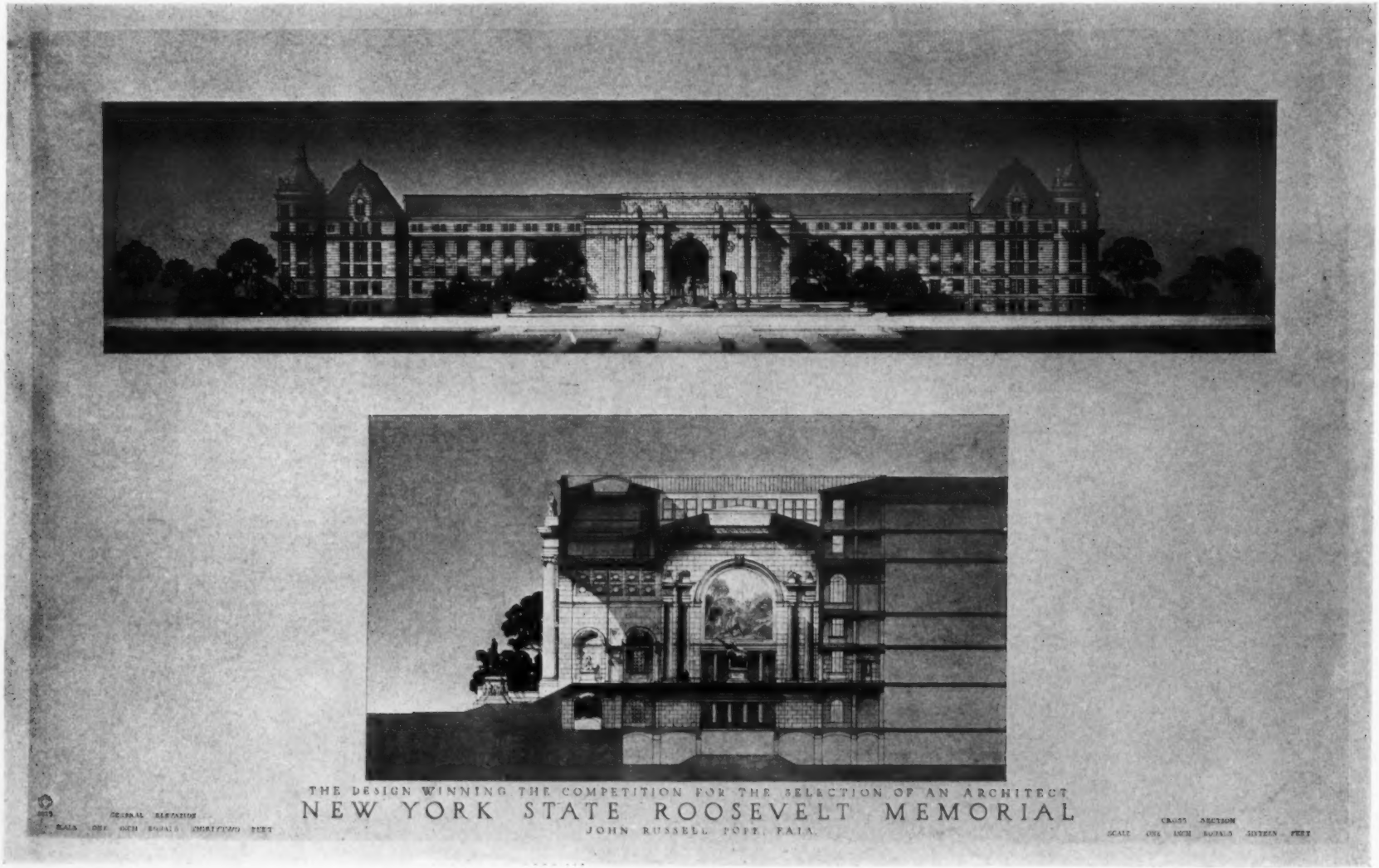
PRIZE WINNING DESIGN

JOHN RUSSELL POPE, ARCHITECT


THE DESIGN WINNING THE COMPETITION FOR THE SELECTION OF AN ARCHITECT
NEW YORK STATE ROOSEVELT MEMORIAL
JOHN RUSSELL POPE, F.A.I.A.
LONGITUDINAL SECTION

PRIZE WINNING DESIGN

JOHN RUSSELL POPE, ARCHITECT


THE DESIGN WINNING THE COMPETITION FOR THE SELECTION OF AN ARCHITECT
NEW YORK STATE ROOSEVELT MEMORIAL
JOHN RUSSELL POPE, F.A.I.A.

PRIZE WINNING DESIGN

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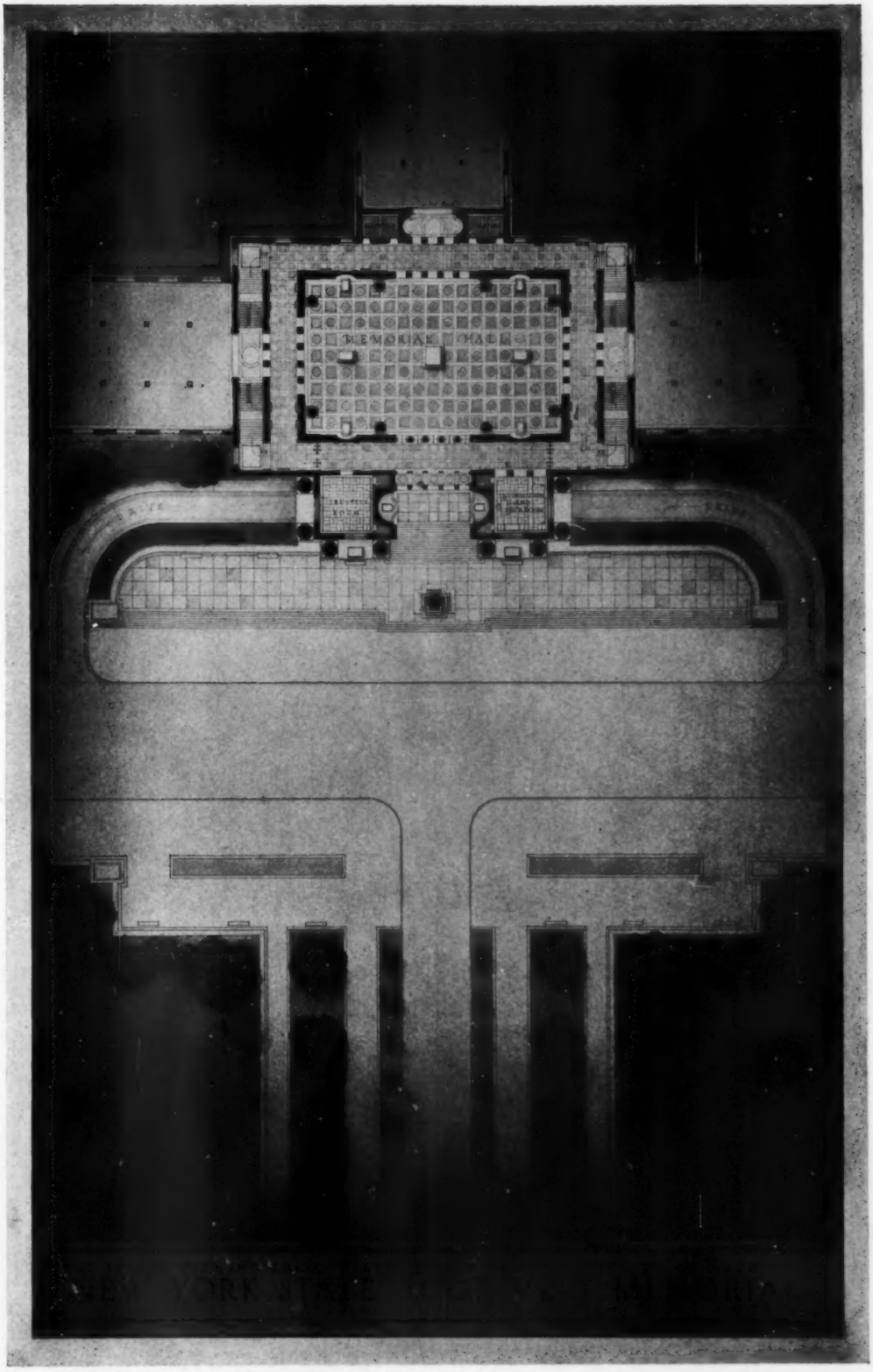
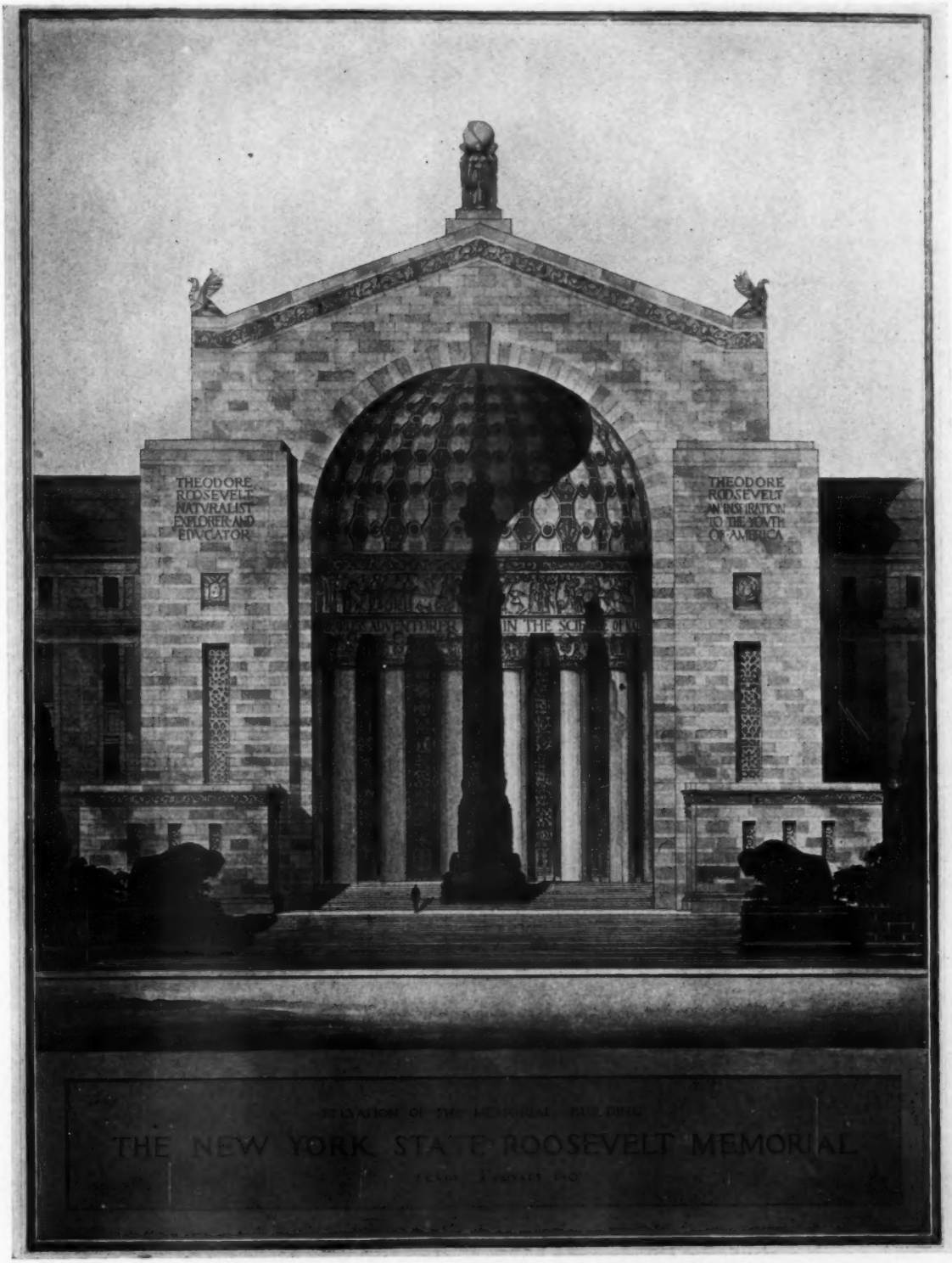


PRIZE WINNING DESIGN

JOHN RUSSELL POPE, ARCHITECT



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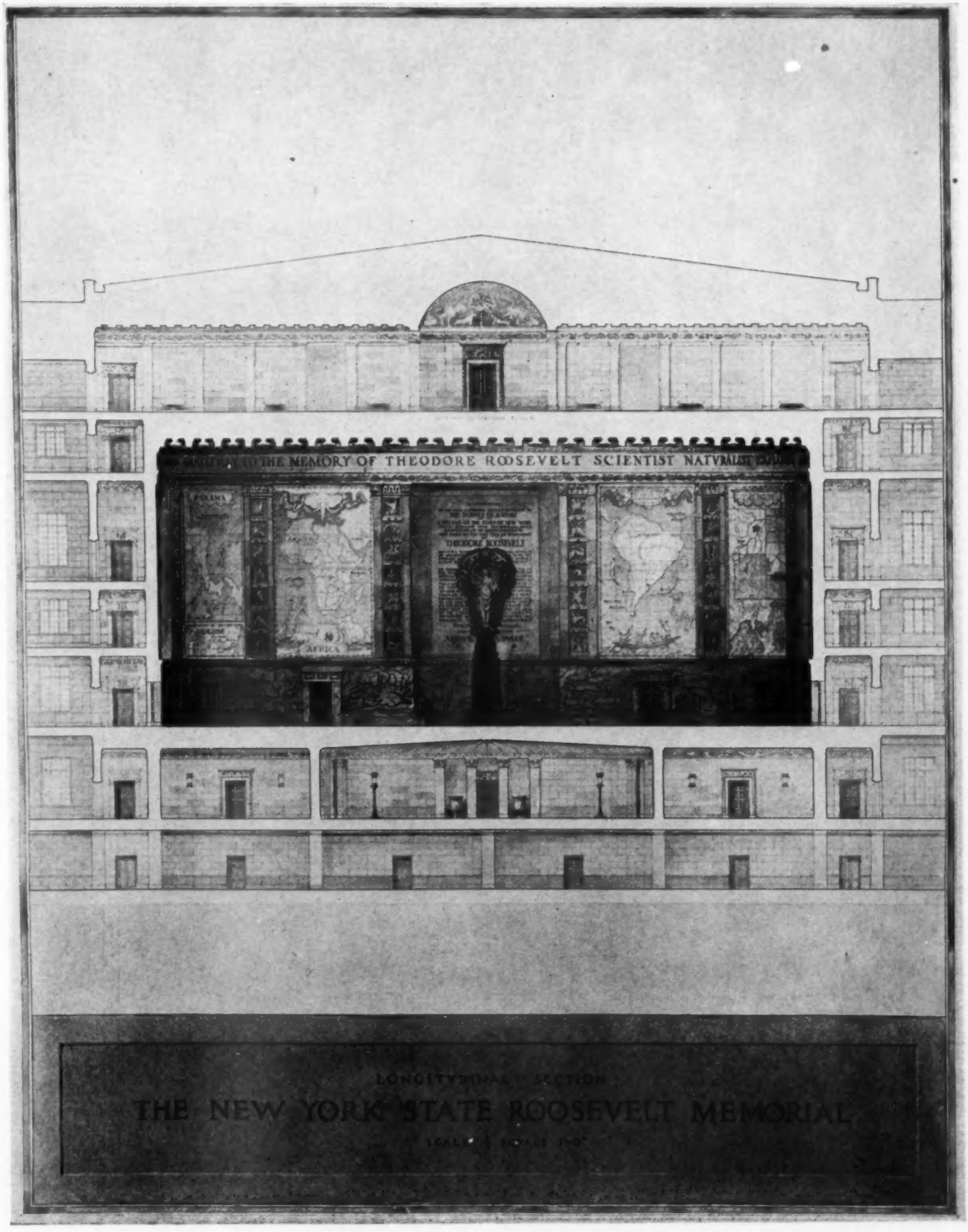

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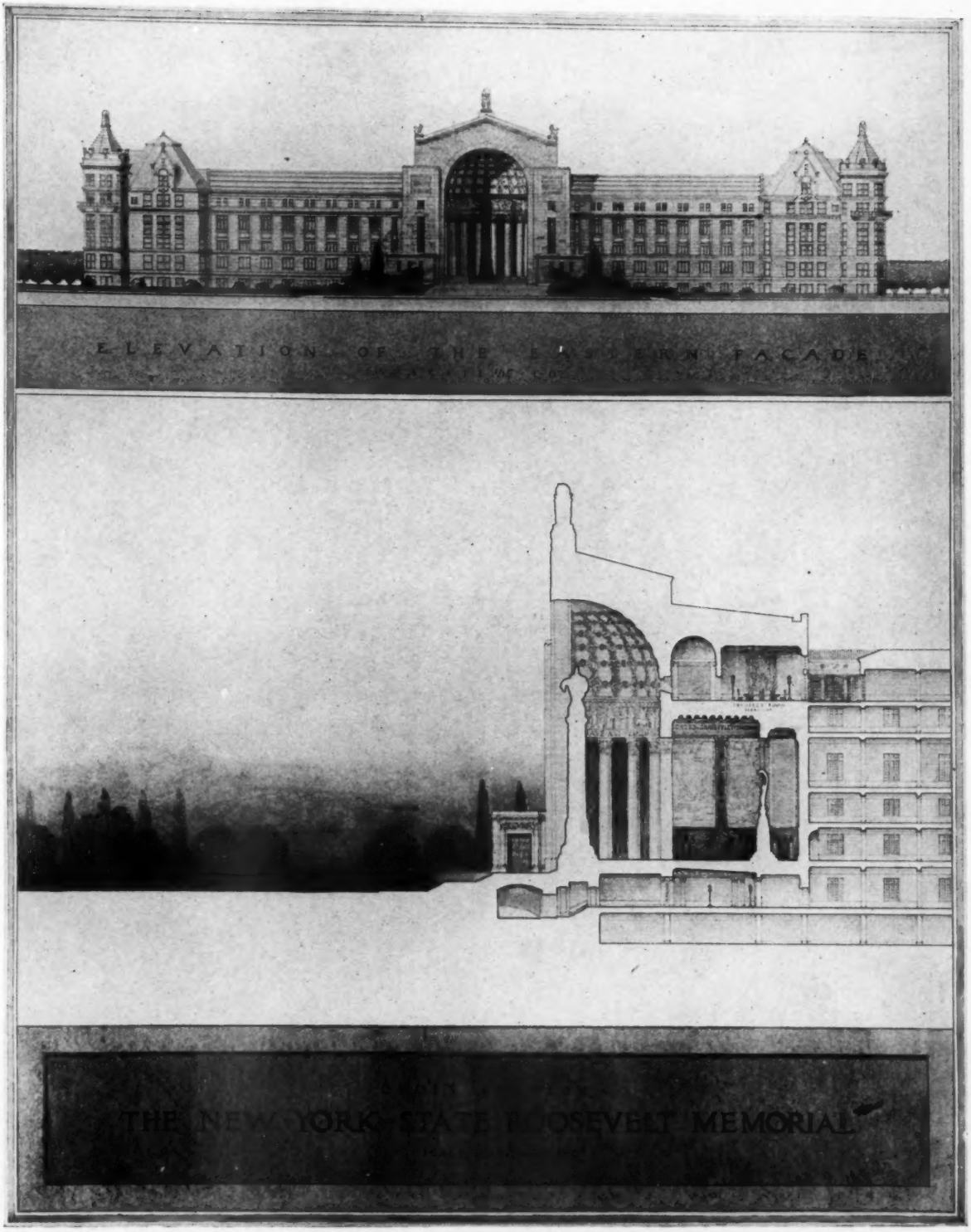

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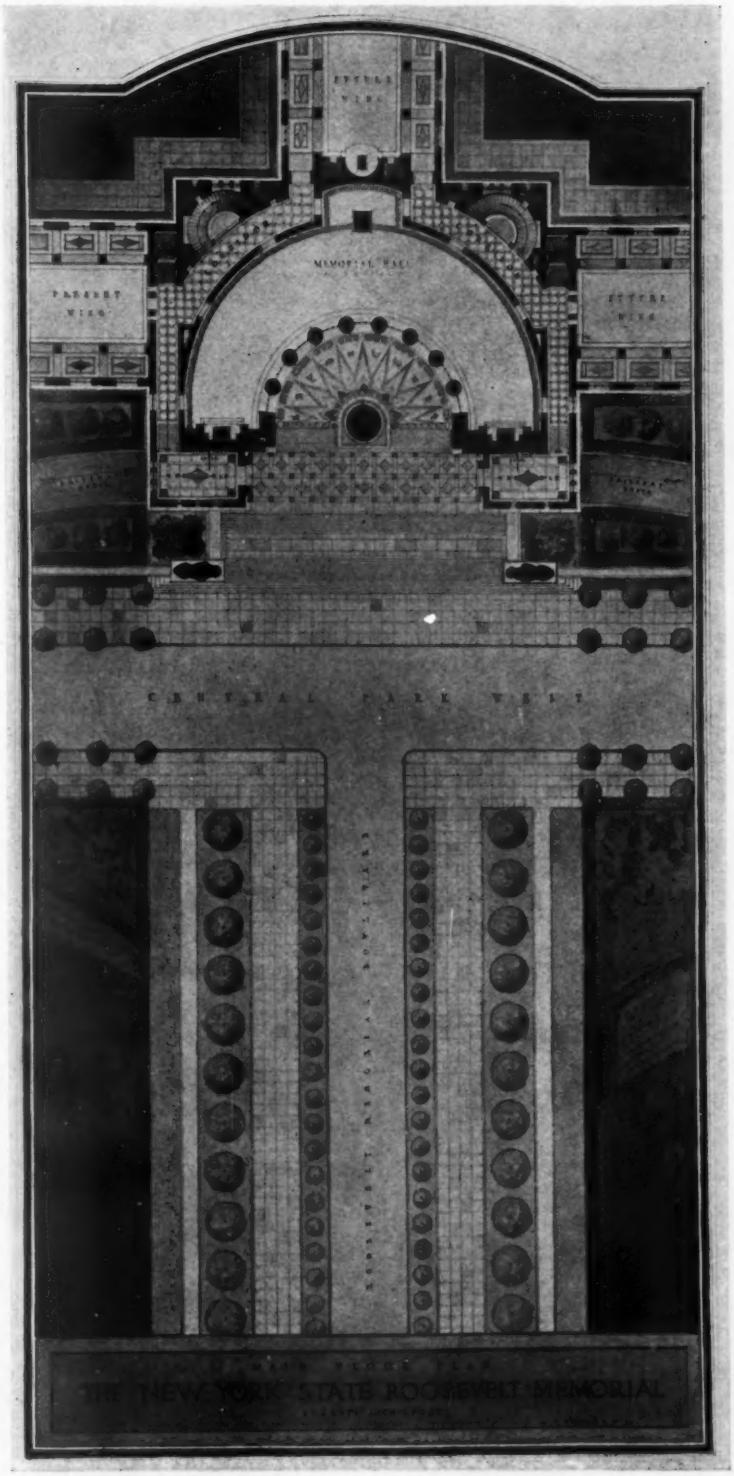

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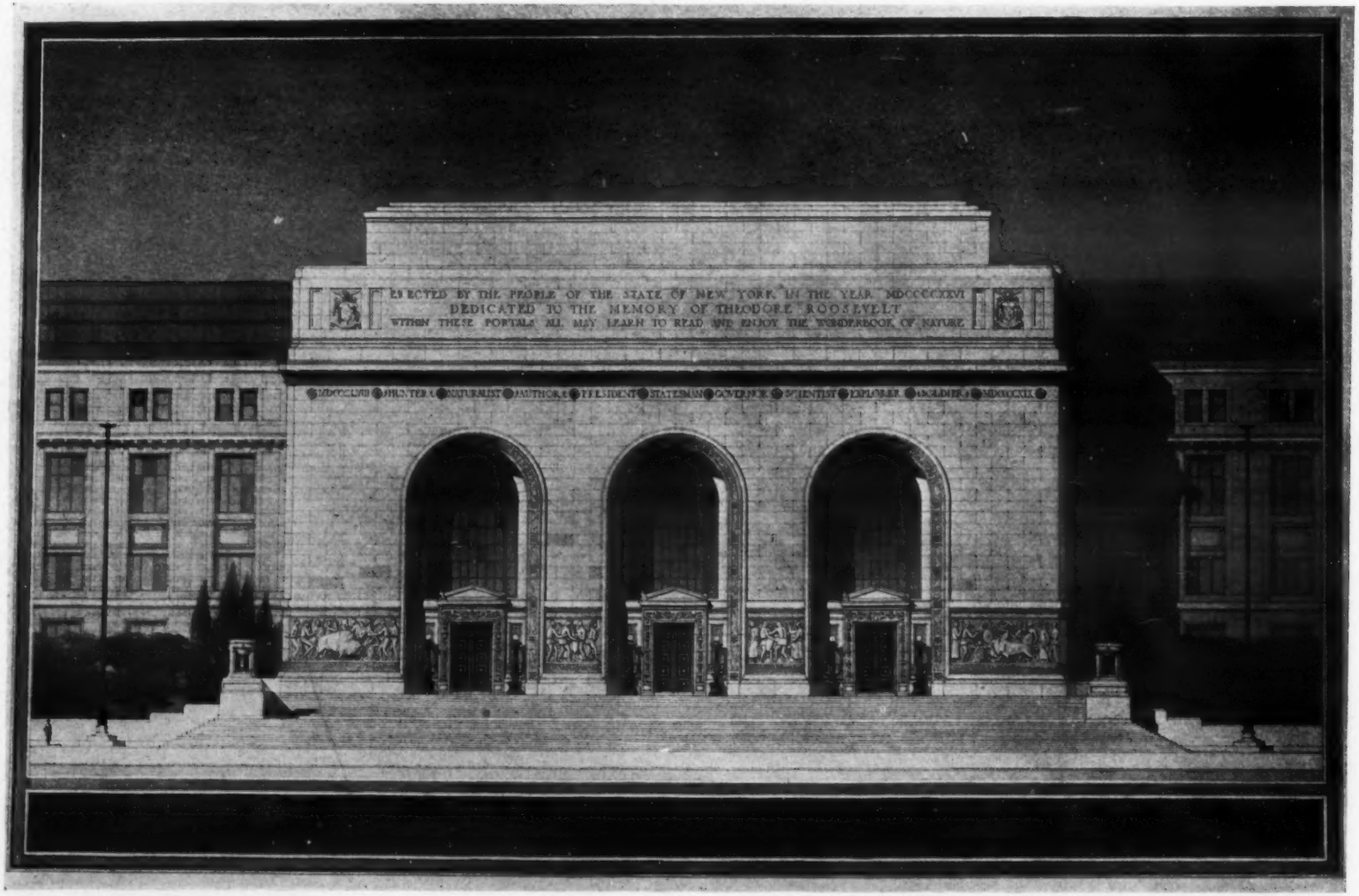
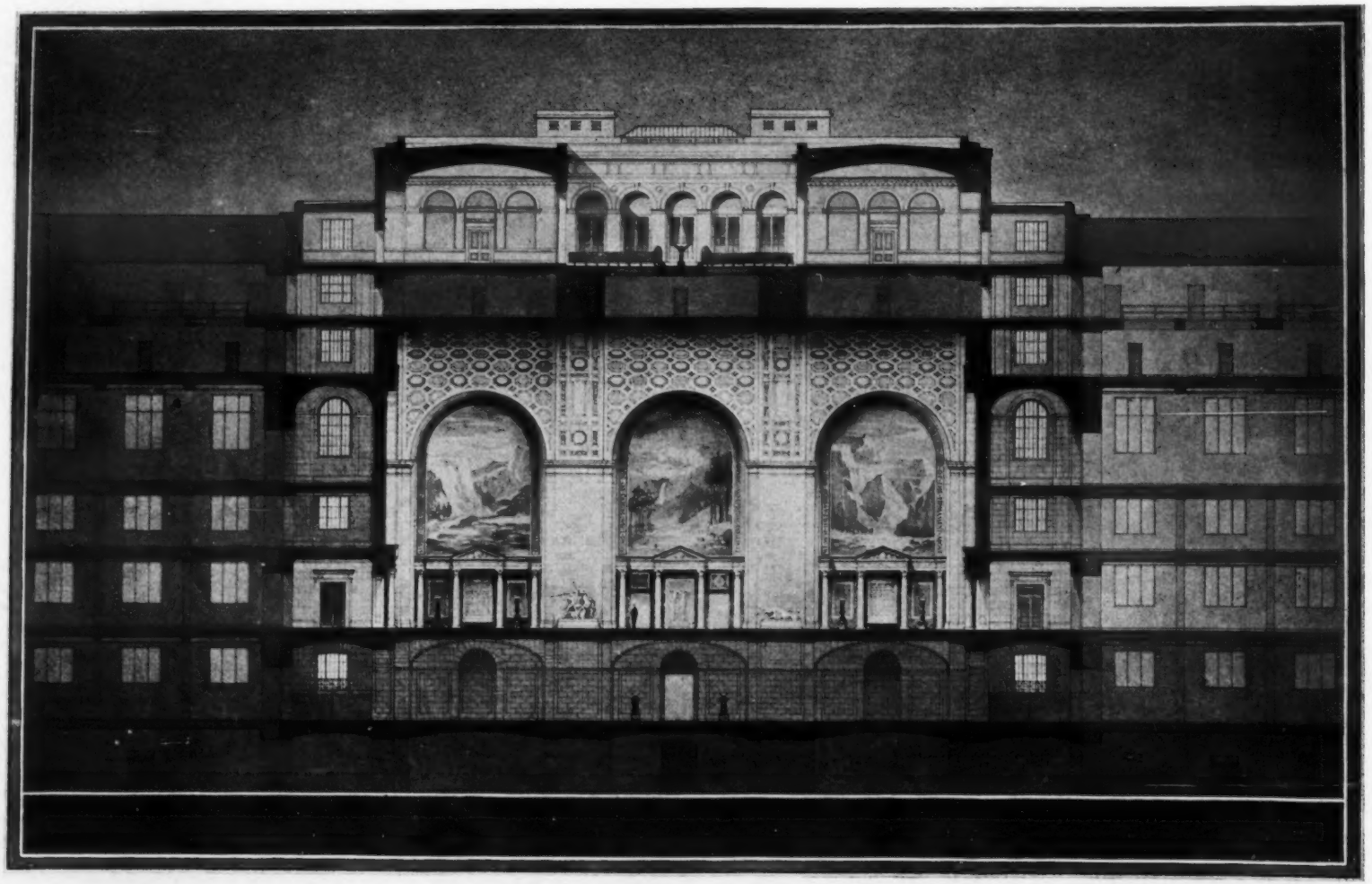

ERECTED BY THE PEOPLE OF THE STATE OF NEW YORK IN THE YEAR MDCCCCXXVI
DEDICATED TO THE MEMORY OF THEODORE ROOSEVELT
WITHIN THESE PORTALS ALL MAY LEARN TO READ AND ENJOY THE WONDERBOOK OF NATURE

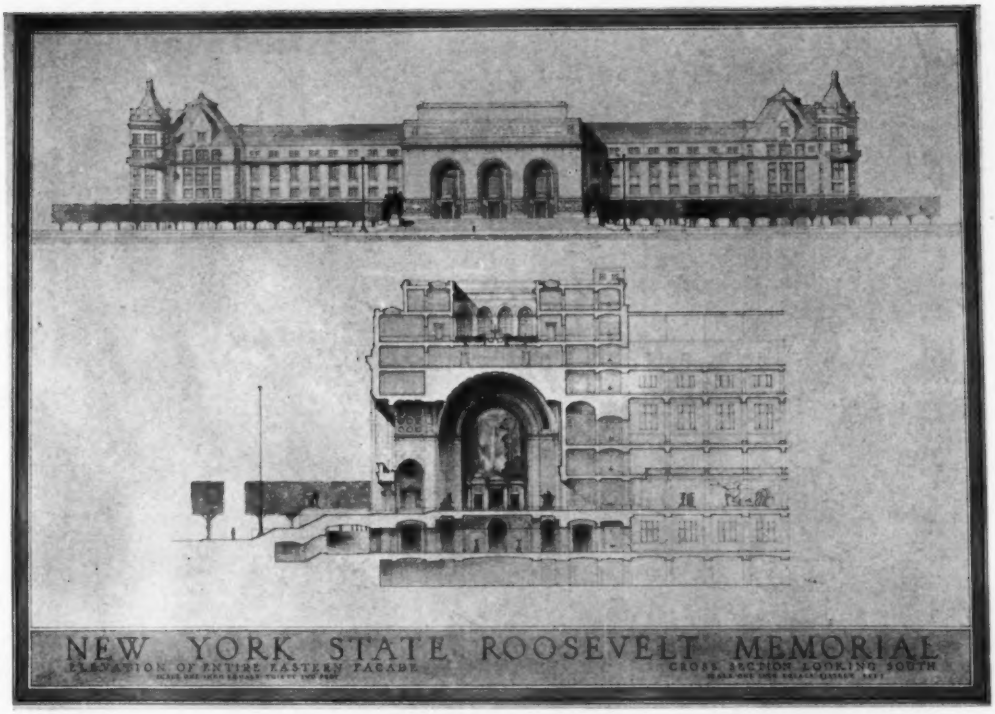
NEW YORK STATE ROOSEVELT MEMORIAL COMPETITION

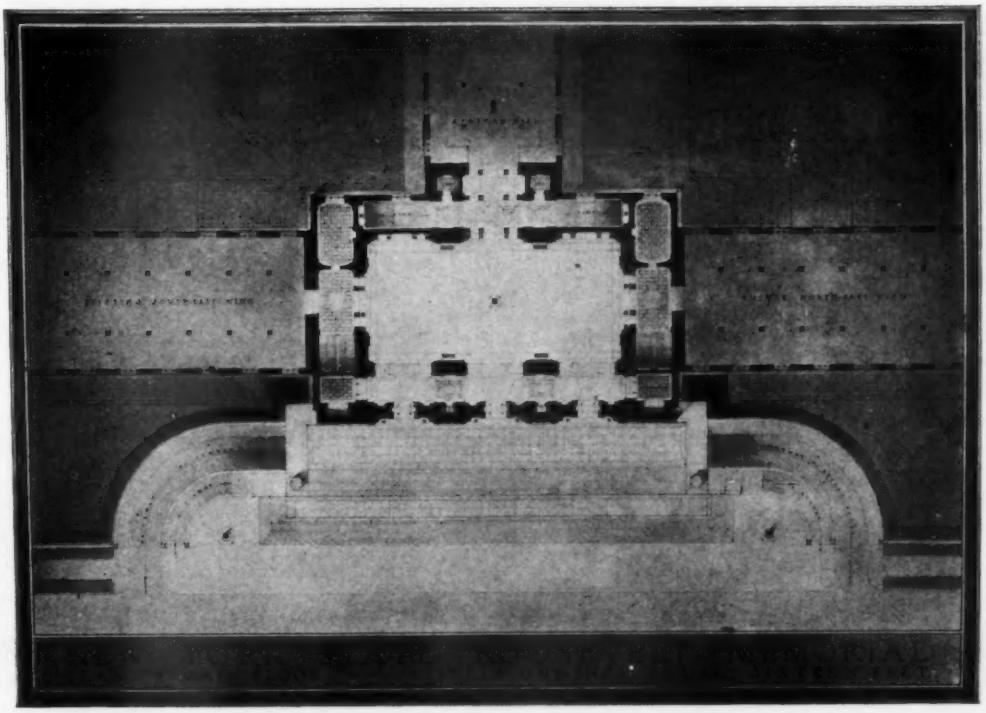
DESIGN SUBMITTED BY TROWBRIDGE & LIVINGSTON, ARCHITECTS



NEW YORK STATE ROOSEVELT MEMORIAL COMPETITION

DESIGN SUBMITTED BY TROWBRIDGE & LIVINGSTON, ARCHITECTS





NEW YORK STATE ROOSEVELT MEMORIAL COMPETITION

DESIGN SUBMITTED BY TROWBRIDGE & LIVINGSTON, ARCHITECTS

INTERIOR ARCHITECTURE

ARCHITECTURE *and* DECORATION *in the* MODERN OFFICE

With especial reference *to the* offices *of the* Standard Oil Company *of* New Jersey, Standard Oil Building, New York

CLINTON & RUSSELL, WELLS, HOLTON & GEORGE, Architects

IT is undoubtedly true that the development of art in the United States has been sadly handicapped by a too close application of commercial principles. This is due to the fact that in everything we attempt in this country the commercial aspect usually is stressed to a much higher degree than in European countries, where the artistic development is more spontaneous and, therefore, much more pronounced. When we pause to consider these conditions and realize, as we so seldom do, that the average business man—or woman—spends one-third of his life in the office, or as much, and, perhaps, even a little more, than he spends in his home (exclusive, of course, of the eight hours allotted for sleep) it does not seem so strange that his business life—the commercial side,—becomes so insistent. The mistake in the past, and the one we are still making, is that we have not taken into consideration the necessity for congenial environment in the office

PRIVATE OFFICE OF THE PRESIDENT

OFFICES OF THE STANDARD OIL COMPANY OF NEW JERSEY, STANDARD OIL BUILDING, NEW YORK

Walnut walls, sienna marble fireplace facings and baseboard, furniture covered in brown leather, a rug of a soft neutral tone, and lighting fixtures of iron comprise the elements which go to make up the architectural and decorative schemes

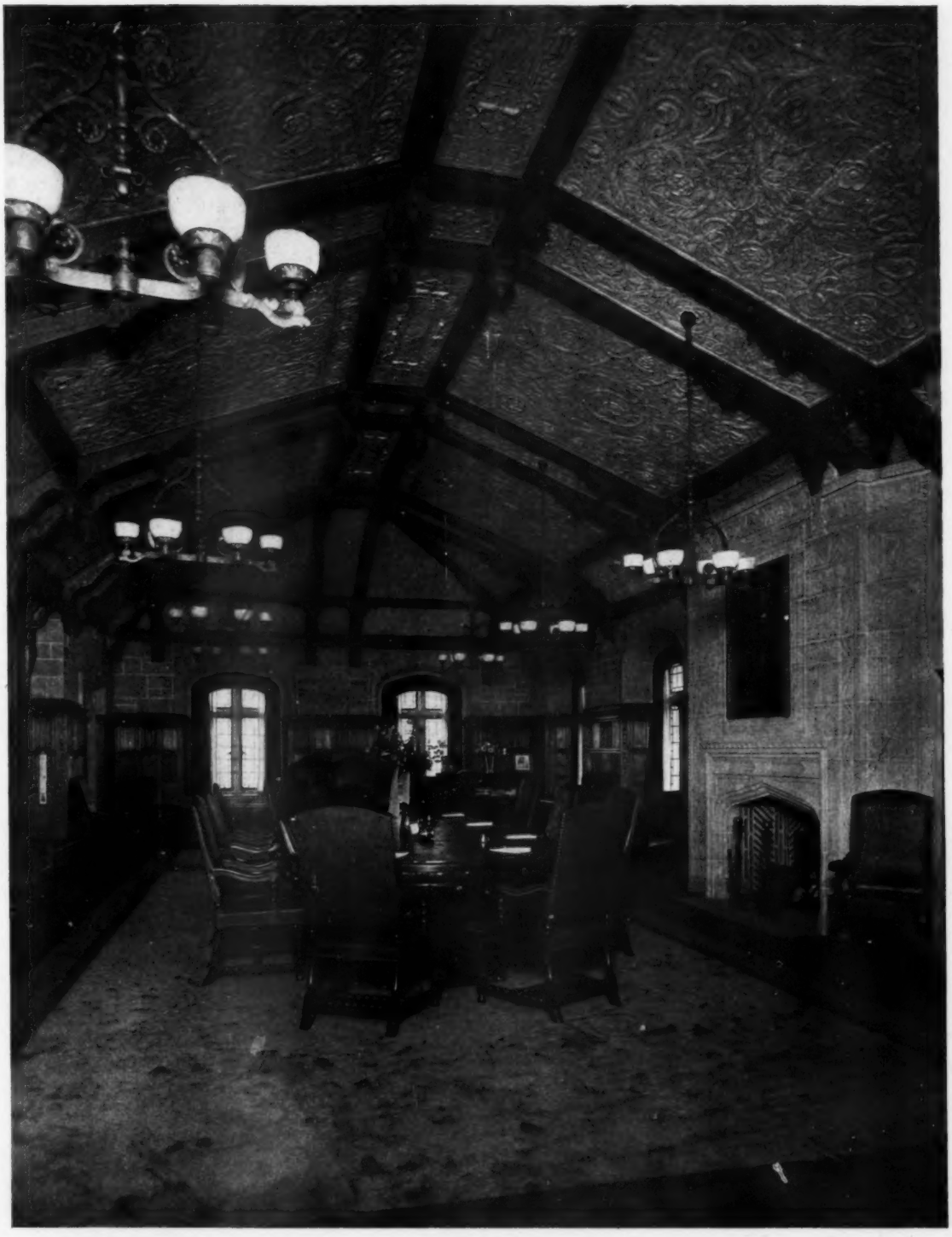
as we have in the home. The increasing interest in house decorating and furnishing during the last decade has been attributed almost wholly to a realization of the fact that the home serves best its purpose when it expresses in definite form the ideals for which it stands and by which its character may be determined, and, in such an expression, architectural and decorative design are found to be the principal means of manifestation. But we seldom carry that principle into our commercial life. Office furniture, as we even call it, is designed by manufacturers to be, first, practical; and, second, not decorative. They seem to think that any decorative interest that might be introduced into its design would tend to disturb the office routine, and that, of course, would be directly contrary to the traditions of modern American business and enterprise. But gradually we are learning the lesson being taught us in our homes, that good, sound architectural design, aided by naturally developed decoration, is rather a stimulant to the mind than a hindrance, and commercialism in design, as we were wont to understand it, is giving way to a new and better interpretation.

At the mere suggestion of an office of any kind, private or otherwise, there naturally comes to the minds of those of the older generation plaster walls, stock wood and glass partitions, conventional flat and roll top desks, swivel chairs and high stools, filing cabinets, and sectional bookcases, all devoid of any artistic expression. These pieces have their practical advantages and the average office cannot do well without them. But not one combines with its practical conveniences any decorative interest as an added attraction; rather, each one is frequently objectionable as a decorative element. The private office, as is natural, is beginning to feel the new order of things first. There is a better opportunity there for the note of personality to be introduced, which, if lacking, as it has been, makes a misuse of the word "private," for without personality, there can be no privacy, in the truer sense. In a thoroughly sympathetic environment the business man will go about his day's work in an entirely different spirit; he will accomplish much more than he will in stereotyped "commercial" surroundings, for the one thing that seemed to make his business life unreal and impersonal, and

PRIVATE OFFICE OF THE CHAIRMAN OF THE BOARD

OFFICES OF THE STANDARD OIL COMPANY OF NEW JERSEY, STANDARD OIL BUILDING, NEW YORK

Walls of walnut, fireplace facings and baseboard of sienna marble, a cork floor on which is laid a rug of yellows and browns, and walnut furniture, covered in rich brown leather, complete the scheme



THE BOARD ROOM

OFFICES OF THE STANDARD OIL COMPANY OF NEW JERSEY, STANDARD OIL BUILDING, NEW YORK

The walls are formed of an oak wainscot surmounted by Kato stone; ceiling beams are of carved oak, and the intervening panels are treated in ornamental plaster in low relief; a dull brown cork floor is partially concealed by rugs of soft olive green tones, and the specially designed walnut furniture is covered in brown leather. The lighting fixtures of dull brass, being also especially designed for the room, play a very prominent part in the decorative scheme

therefore tedious and laborious, has been removed. He brings his whole self to the office now, while before he left part of his life at home, for there was no place for it in his commercial existence. His office has become *his* office, while before he seemed a sort of prisoner there.

No better illustration of these new conditions could be found than the offices of the Standard Oil Company of New Jersey in the new Standard Oil Building at 26 Broadway, New York City. Carrere & Hastings, Shreve & Lamb were the architects of the building. This company occupies the entire twenty-first, twenty-second and twenty-third floors of the building and, these three floors, however, were laid out and completely designed by Clinton & Russell, Wells, Holton & George, and it is photographs of their work that are reproduced here. It would be well to state at the outset that the designs of all the rooms are characterized by simple lines in good proportion, stimulated by a careful application of pleasing color, and the interest in none depends on its rich ornamentation or elaborate detail.

The private office of the president, while practical in the sense that it is a business office, has nothing of the old-fashioned commercial aspect about it at all. The walls, in solid planks of American walnut, are given peculiar interest by the figure and grain of the wood, while, at the same time, their simple treatment does not allow of any distraction as p a n e l l e d walls, so often used, would tend to create. The walls in the private office of the Chairman of the Board are similarly treated. A certain individual note has been introduced into the design of each room in the detail of the woodwork and in the decoration over the fireplace, as will be seen in the photographs. While the general color scheme of the two rooms is somewhat the same, the rooms are alike only in that they both represent the personality of the serious-minded; there is nothing in the make-up of either even to suggest idleness or ease, nor yet is its businesslike seriousness carried to the point of disinterest.

The reception hall leads from the elevator hall to the ante room, which, in its turn, opens into the Board Room. The design of this ante room prepares one, to a certain extent, for what is found beyond. Its walls are panelled in oak from floor to ceiling, carved pilasters serving to divide the panels into groups supporting a carved frieze and cap moulding. The plaster ceiling is spotted after the manner of the early Scotch with parge work ornamentation, each of the several designs being emblematic of the various industries sponsored by the company. This introduction of the personal

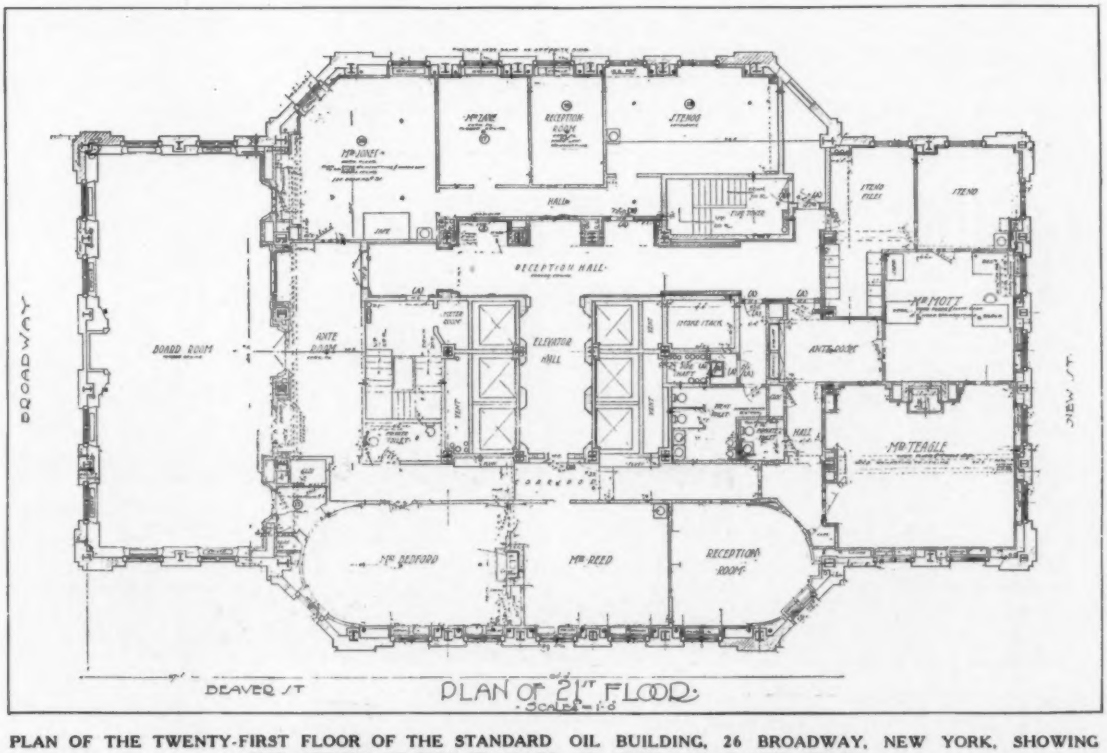
ANTE ROOM LEADING TO BOARD ROOM

OFFICES OF THE STANDARD OIL COMPANY OF NEW JERSEY, STANDARD OIL BUILDING, NEW YORK

An interesting feature of this room is the parge work ceiling. Designs which are symbolical of the several industries of the company are used as ornamentation

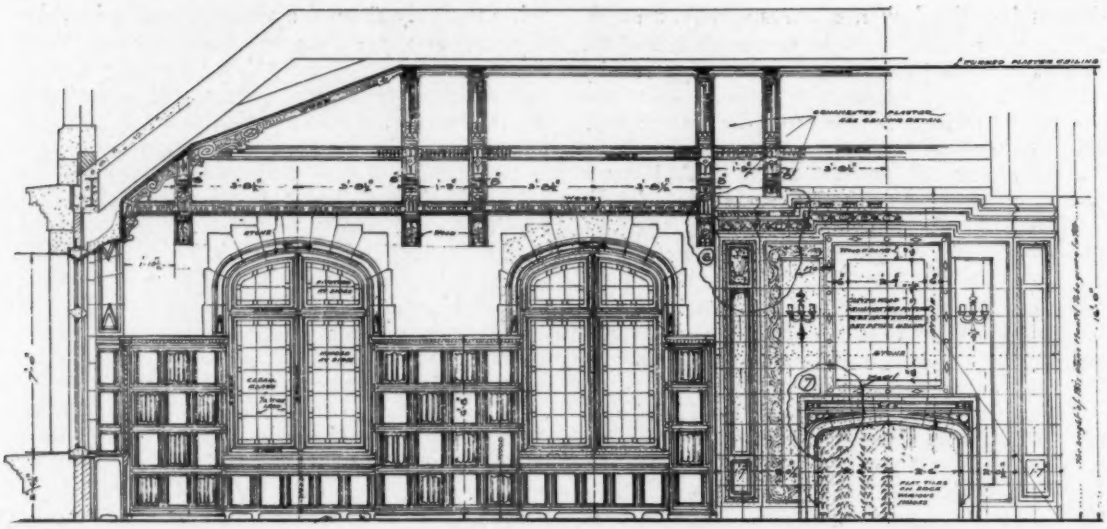
element into the design, so characteristic throughout the entire floor, is to be commended, and the architects, in taking advantage of the opportunity offered have shown themselves possessed of a creative genius which is, quite often, lacking in modern architectural and decorative design. The doors serve as the real connecting link between the ante room and the Board Room, as they should, by reason of the service which they perform. These doors, (there are three similar pair opening out from the Board Room) are carved entirely out of solid oak. Even the effect of applied mouldings, which make up practically its entire design, except for an occasional rosette in low relief, are all carved out of the solid.

All the woodwork in the Board Room is of English oak,—doors, wainscot which follows around the greater part of the room, ceiling beams handsomely carved, and the furniture,—and all is finished in a light amber tone rubbed down in wax to a dull finish, thus taking advantage of every line of the figure and grain of the wood. It counts in the decorative scheme as a color and not simply as black, as old English oak, for example, so often does. In fact, every detail has its value and nothing is lost. The walls above the wainscot and the entire chimney breast are of Kato stone, set in blocks of various sizes and shades of amber (that being probably as good a way to describe its color in words as any). The oak woodwork and stone combined with a delicately tinted ornamental plaster ceiling, a brown cork floor and dull brass lighting fixtures create an effect that would be difficult to improve. The cork floor is partially concealed by large rugs of an olive green hue, with a line border of deeper shades of the same color; the furniture, or such of it that calls for it, is covered in a rich brown leather, and the windows are draped with side curtains and valances of an olive green velour, similar in shade to the rugs. The windows themselves are divided by stone mullions, fitted with metal casements, set with leaded lights. Sash curtains of an ecru casement cloth are hung at each opening. The room seems actually to be alive with color, and yet, on scrutiny, the amber tones are found to predominate, being even carried into the olive green of the rugs and draperies. It is the clarity of color, then, that impresses. But over all is its sincerity of design. While the furniture was especially designed and constructed, and the design of the lighting fixtures was studied to accentuate the architecture and to serve a much nobler purpose than just to give light to the room, there is not a single detail in the entire room that needs excuse or explanation for its existence. Everything is there for some reason.



PLAN OF THE TWENTY-FIRST FLOOR OF THE STANDARD OIL BUILDING, 26 BROADWAY, NEW YORK, SHOWING THE OFFICES OF THE STANDARD OIL COMPANY OF NEW JERSEY

CLINTON & RUSSELL, WELLS, HOLTON & GEORGE, ARCHITECTS

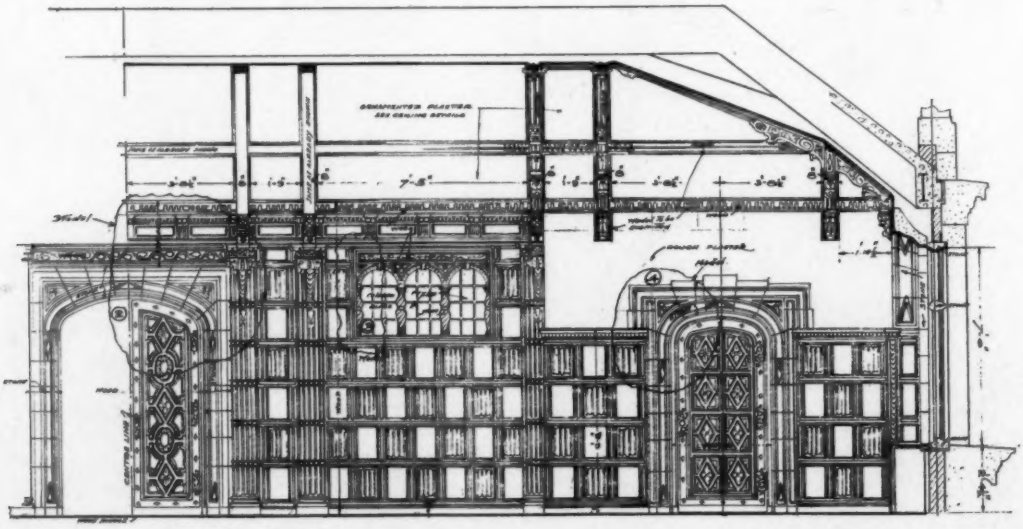


ONE-HALF OF THE WEST ELEVATION OF THE BOARD ROOM, STANDARD OIL COMPANY OF NEW JERSEY, STANDARD OIL BUILDING, NEW YORK

CLINTON & RUSSELL, WELLS, HOLTON & GEORGE, ARCHITECTS

The entire mantel breast, the walls above the wainscot and the mullions of the windows are of Kato stone; the wainscot and ceiling beams are of oak, and the ceiling of plaster

Good decorative design develops just as naturally from the architectural scheme as good architectural design arises only from the structural plan. Decoration is not simply a means of elaboration; it is the availing of the opportunity to accentuate certain features of the architectural scheme over others, to give them more importance by adding interest and creating contrast. There is always a good reason for good decoration. If this principle of *natural* development of both the architectural and the decorative schemes, which was so peculiarly characteristic of the early Grecian builders, is accepted as the basis of modern design, the future of art in this country will look brighter.



ONE-HALF ELEVATION OF THE WALL OPPOSITE THE MANTEL, BOARD ROOM, STANDARD OIL COMPANY OF NEW JERSEY, STANDARD OIL BUILDING, NEW YORK

CLINTON & RUSSELL, WELLS, HOLTON & GEORGE, ARCHITECTS

The large doorway opens from the ante room and the small door at the right leads into the private office of the Chairman of the Board

HOUSE OF PROFESSOR A. J. EAMES, ITHACA, N. Y.

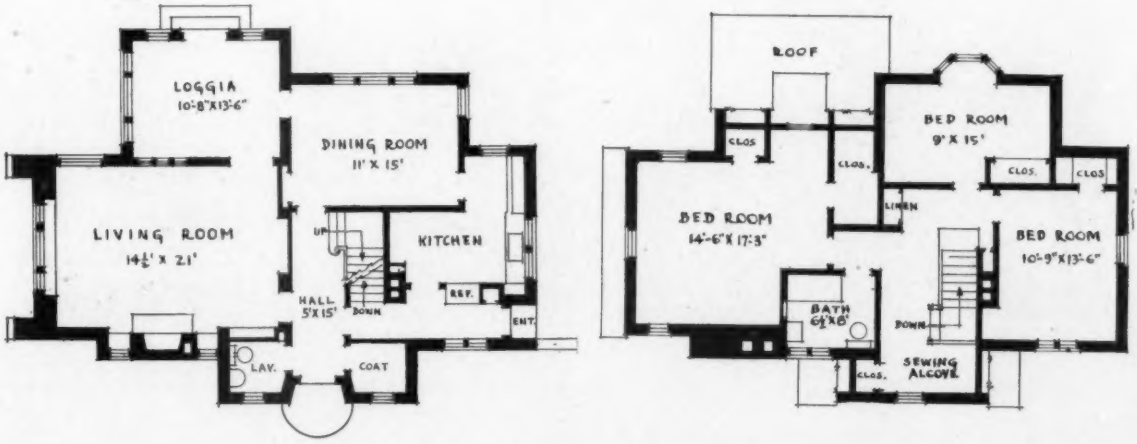
CARL C. TALLMAN, ARCHITECT

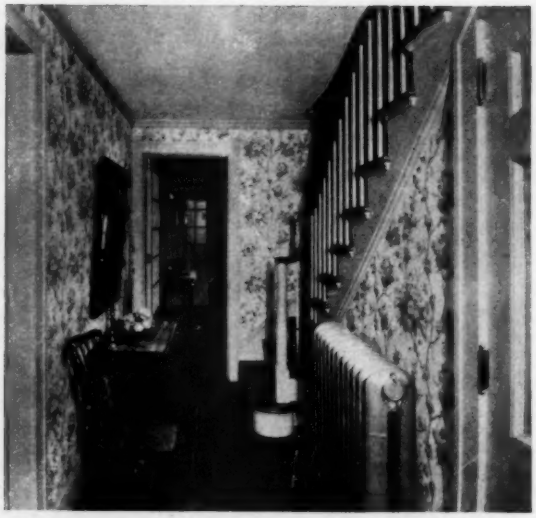
This house was built in 1922 and cost $16,000., including the garage. Cost per cubic foot 45 cents.

It is built of local stone backed with hollow tile. The roof is slate.

The problem presented by the cost limit and the topography of the lot called for a compact yet picturesque type, the locations of the main rooms being determined more by the vistas of valley and lake toward the South and West than by the usual considerations of the points of the compass. Consequently the angle of the house was chosen after careful study at the lot so as to afford the best views and to fit the natural contours to the best advantage.

The heating system is hot water.





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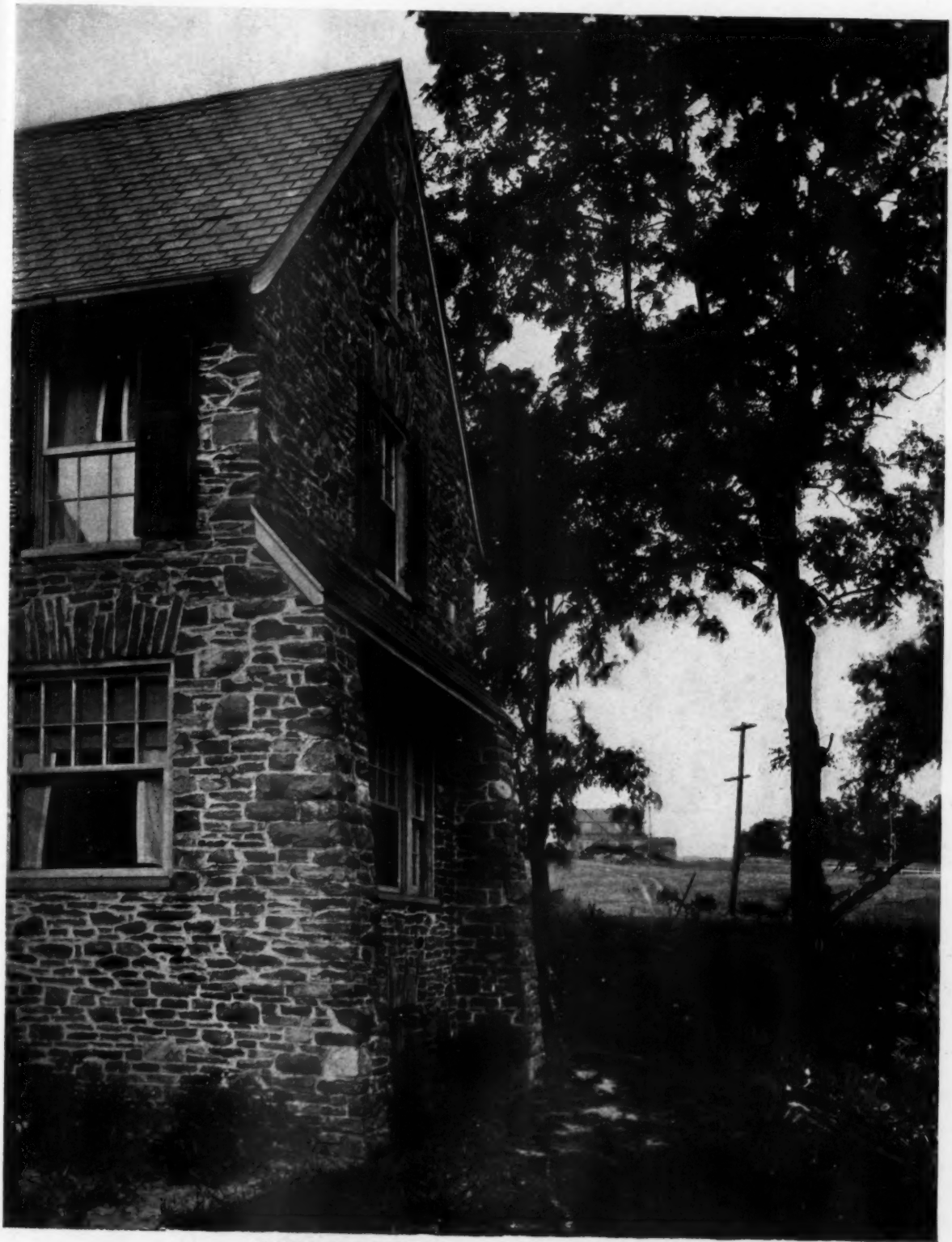

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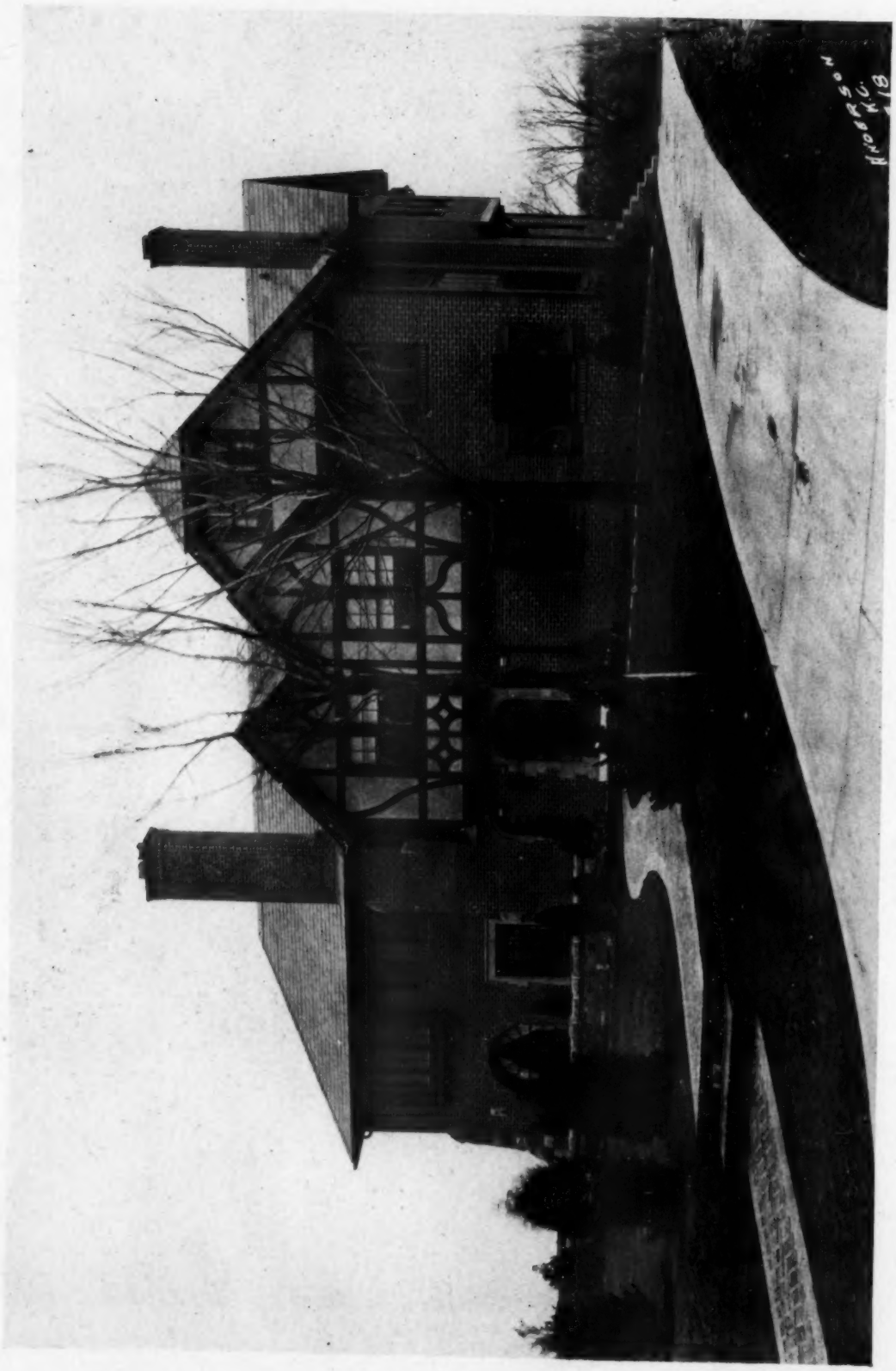
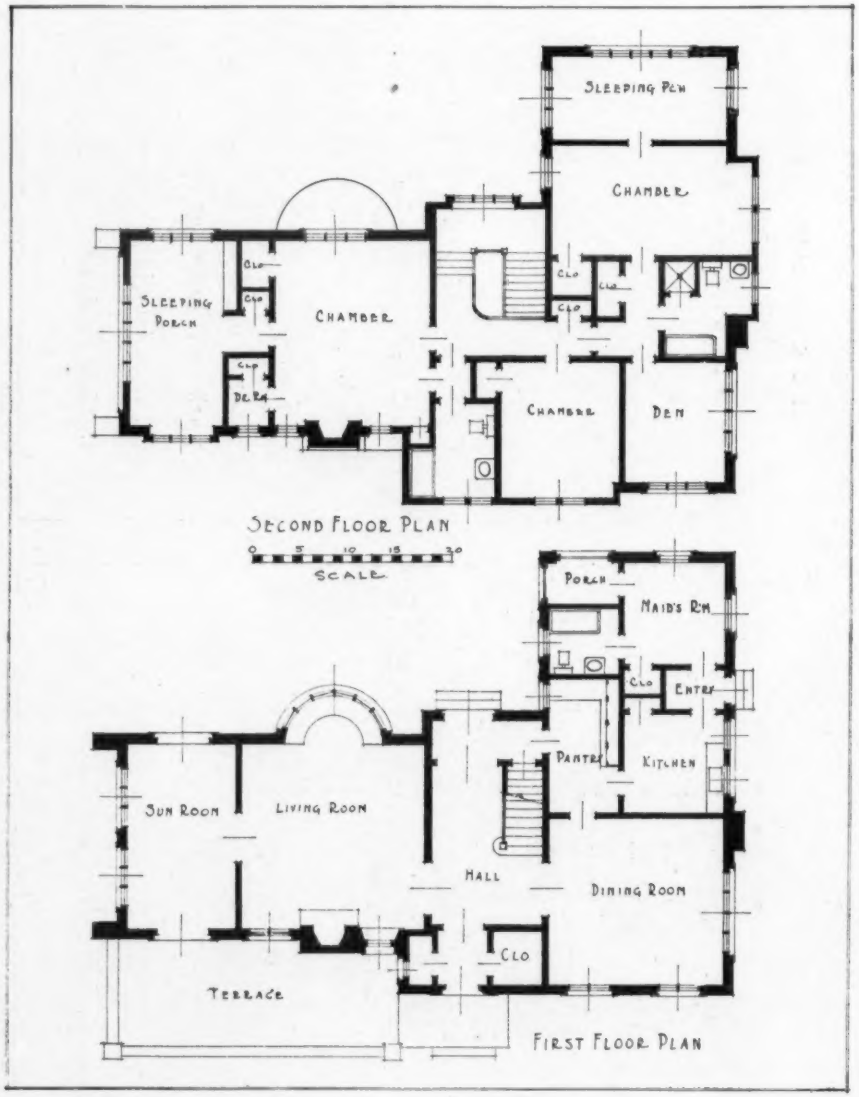


HOUSE OF B. C. MOORE, KANSAS CITY, MO.

CLARENCE E. SHEPARD, ARCHITECT



HOUSE OF B. C. MOORE, KANSAS CITY, MO.

CLARENCE E. SHEPARD, ARCHITECT

THIS house presents a good example of a well considered combination of different materials to effect an artistic result.

It was built in 1922, at a cost of 48c per cubic foot.

It is of frame and brick veneer construction, the exterior walls being of stucco, brick and half timber.

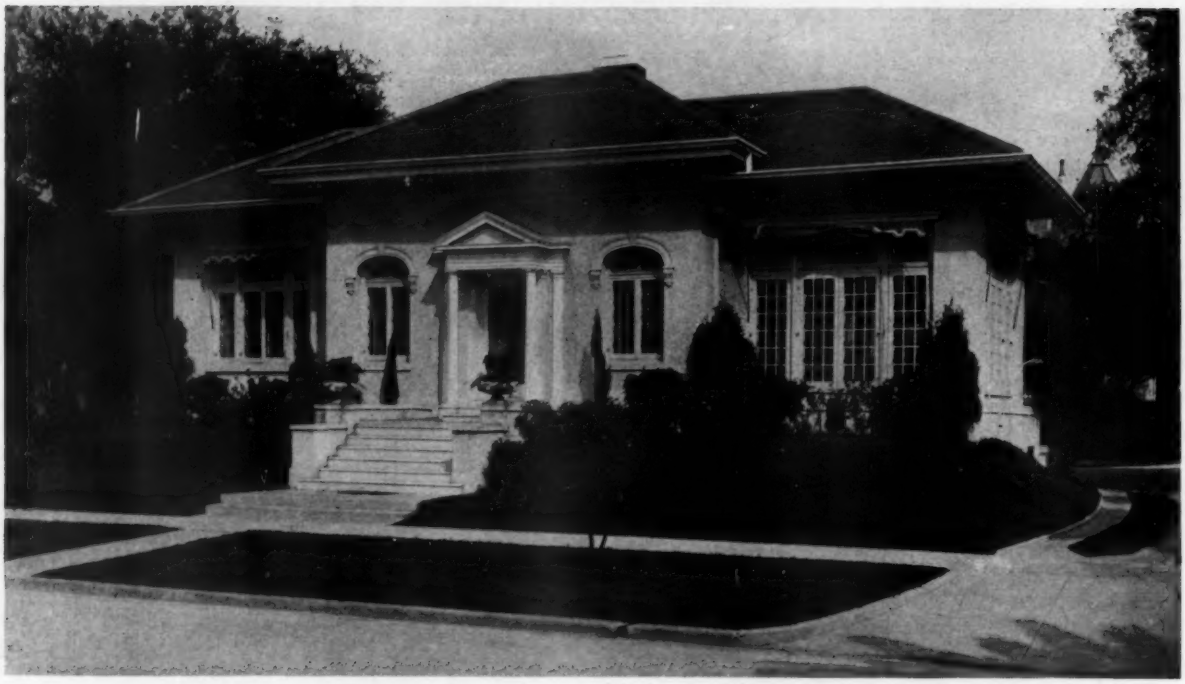
Roof is shingled.

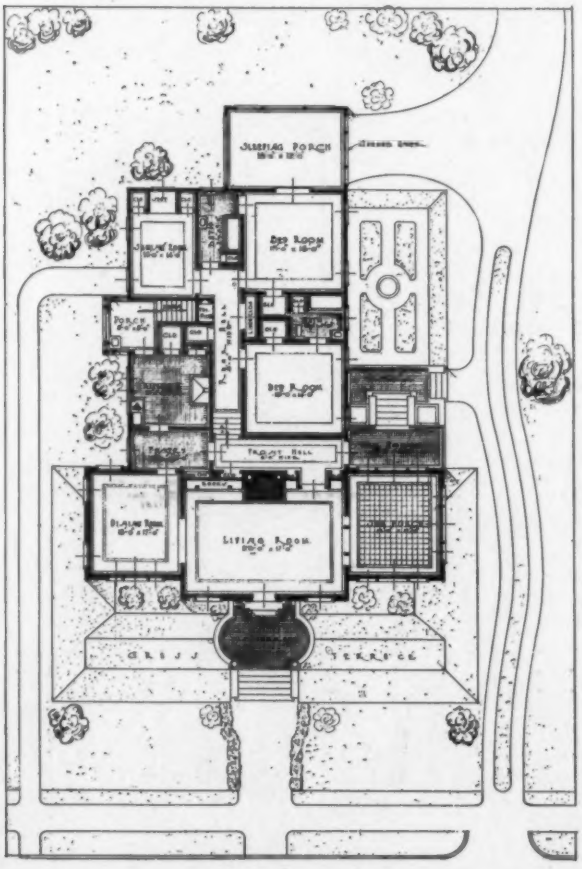
All interior trim is enameled with five coats on yellow pine.

Hot water heating system.

Built-in tubs and pedestal lavatories.

Art stone fireplace in living room, which also has an ornamental plaster ceiling.





HOUSE OF CHARLES SUGARMAN,
NEW ORLEANS, LA.

WEISS & DREYFOUS, ARCHITECTS

Built 1922.

Cost $25,000 or 20c per cubic foot.

Wood frame construction.

Exterior wall covering, stucco.

Roof, slate.

Flooring, oak. Tile in kitchen, pantry, porches and bathrooms.

Interior trim, pine.

Heating, warm air.

"SANSOM GARDENS," A UNIQUE LIVING QUARTER *in* PHILADELPHIA

BY *ELIZABETH BOOTES CLARK, Landscape Architect*

THE remodeling and modernizing of old houses which seems to be sweeping over Philadelphia like a fever is a most interesting phenomenon to observe. The urge seems to have sprung up overnight and is proving itself to be a permanent and durable growth.

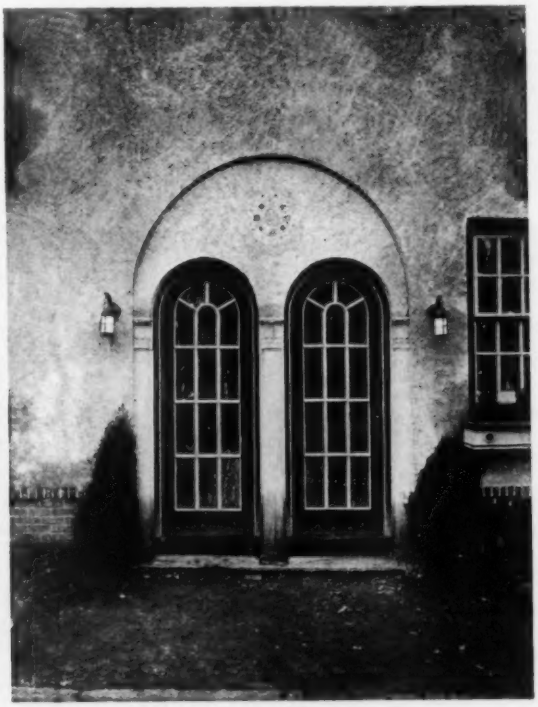
In freshness and originality of design "Sansom Gardens" is, possibly, the most satisfying of any of these building operations which had their initial impetus but three years ago. William F. B. Koelle, the architect, when asked what he considered the style of architecture to be, Spanish, or Moorish, said "Oh! Spanish—Italian—of the East"—a shrug—"all of them. We'll call it American architecture." Mr. Koelle had received his inspiration from a protracted trip abroad and has combined many of these impressions in the "Sansom Gardens" scheme. He also stated that no remodeling and building construction is developing in any other city, Canada included, along the lines that Philadelphia is harboring. And Mr. Koelle should know for it is he who is designing much of it.

Old brick houses familiar in the building operations of the Philadelphia of fifty and seventy-five years ago formed the nucleus on which "Sansom Gardens" was built. Finished, it is roughly plastered in a warm mustard tint with cream trim and black decorative touches. The wide archways including the smaller double archways of two entrances, with a medallion tile inset above, is a particularly interesting detail. The gates themselves which give entrance onto the garden walks are most unique in their scroll-like design and graceful flow of line, and quite Spanish in feeling. Built of wood as they are, painted black touched up in mustard-yellow, with iron scrolls overhead for the support of lanterns, they form a charming break in the wall frontage on the street.

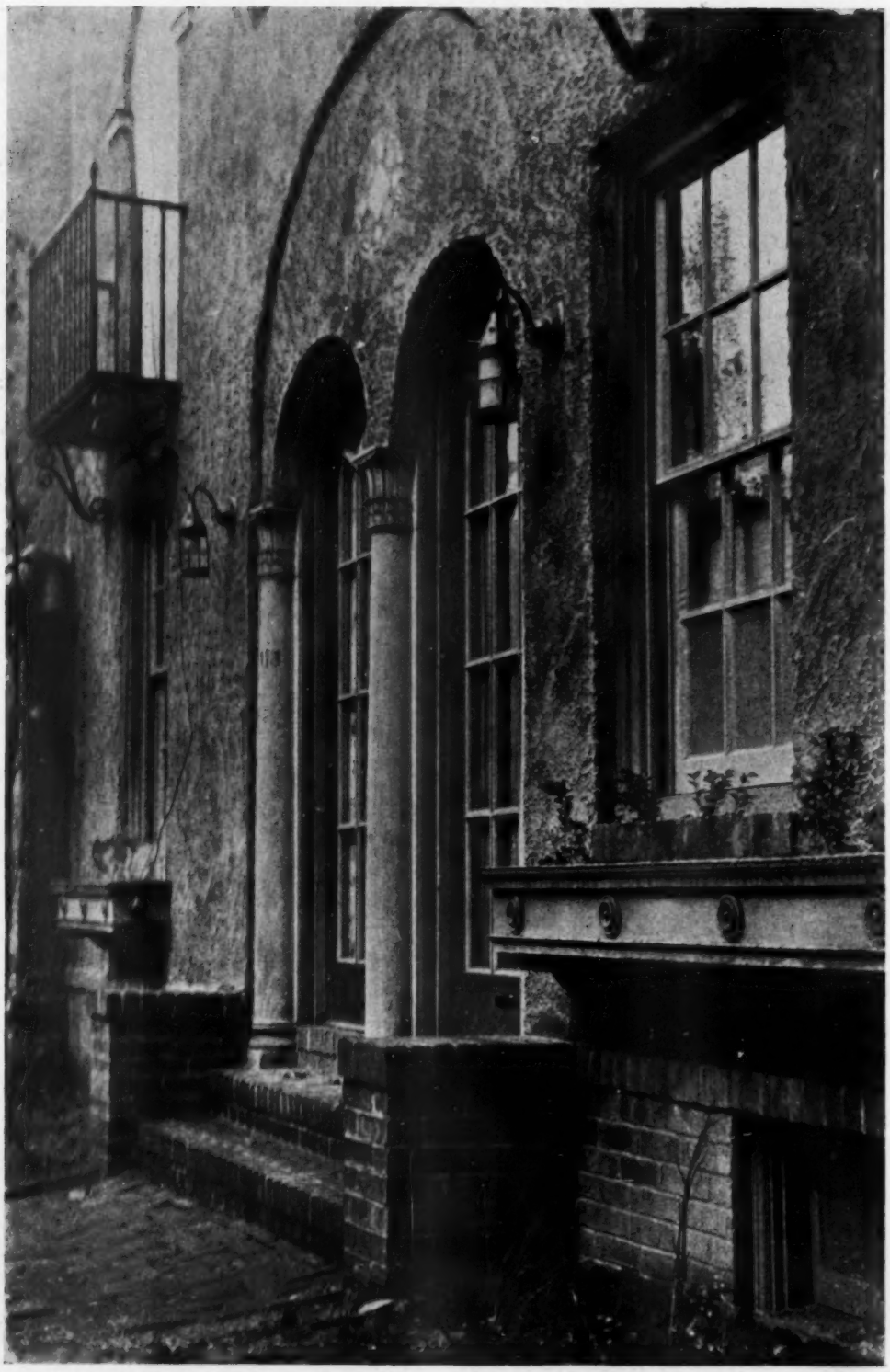
In all, excellent proportions and exceeding grace in detail characterize the entire architectural design.

"Sansom Gardens" is at 22nd and Sansom Streets, Philadelphia, a hitherto shabby and unattractive district, with brick buildings which were ugly and cross streets which were overgrown with grass. No trolley tracks are on any of the immediately adjoining streets, nor are there heavy

GARDEN GATE



DETAIL OF DOORWAYS



DETAIL SHOWING DECORATIVE VALUE OF WINDOW BOXES AND ORNAMENTAL IRONWORK

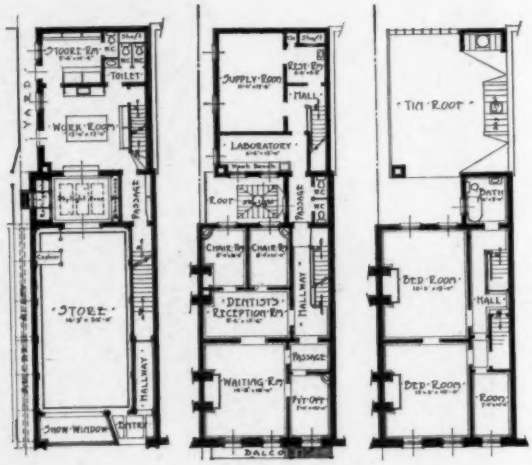
VIEW LOOKING UP VAN PELT STREET

trucks to lumber along at night. Our little-used side streets may solve the noise nuisance.

The garden area is not so very large, but it is enough to give that restful touch of green foliage and a little color from the flowers which is so sorely needed in our city drabness. Window-box planting, small red cedars, such things as Lombardy poplars, privet, etc., which have become acclimated to city life, and the inclusion of a garden scheme in the general layout, make this development a genuine one in the city's life. The effect of it as a massed whole as one comes upon it from a distance is of gracious lines and a fresh bit of color touched up with living green things which charms the eye as an oasis in a desert of neutral brick and asphalt.

Within herself, Philadelphia seems to be brooding a plan for a quieter, saner home life for her people. There are six or seven developments in the very heart of the city, with various owners and with various architects, and I am sure that there has been no concerted action by them on plans or ideas. Yet each of these developments contains the same group of fundamental ideas:—quietness, color, and the growing things of a garden. All are situated off traffic lanes, have much color in woodwork, plaster or insets, and surrounded by or include a garden scheme.

Psychologically, it is most interesting that these architects should all have answered to the same need and call. From the viewpoint of architecture and landscape architecture this matter of urban dwellings is approaching a wholesomeness which is encouraging.



A STORE BUILDING IN BALTIMORE, MD.

WALTER M. GIESKE, ARCHITECT

IN designing this store front on a thoroughfare formerly given over to private residences, the architect has retained the Colonial style of which the neighborhood was representative, and by artistic commingling of different materials secured an attractive result.

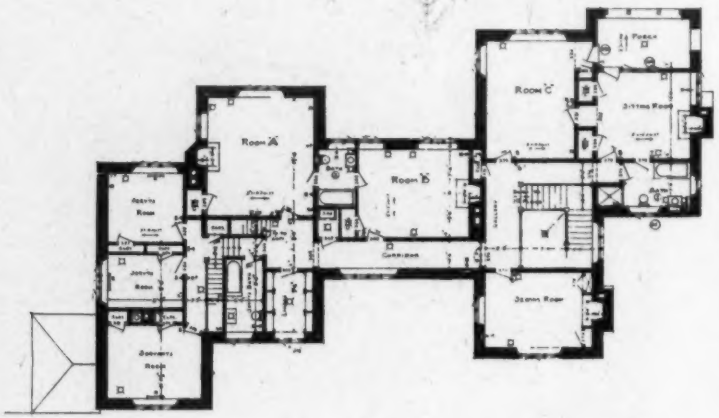
THE FIRST BATHTUB

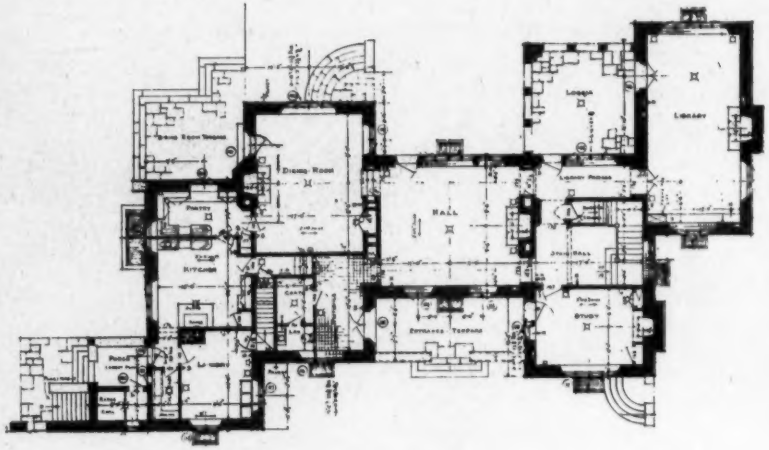
THE first American bathtub, made of sheet lead and mahogany, was exhibited by its proud possessor at a Christmas party in Cincinnati in 1842, it is learned from the *Straus Investors Magazine*. In the following year the city of Philadelphia, by public ordinance, attempted to prohibit bathing between November 1 and March 15, and in Boston, only 80 years ago, bathing was unlawful except when prescribed by a physician. Certainly we have progressed since 1845!

HOUSE OF WM. M. C. KIMBER, GERMANTOWN, PHILADELPHIA, PA.

EDMUND B. GILCHRIST, ARCHITECT

(Plans and description on back)





HOUSE OF WM. M. C. KIMBER, GERMANTOWN, PHILADELPHIA, PA.

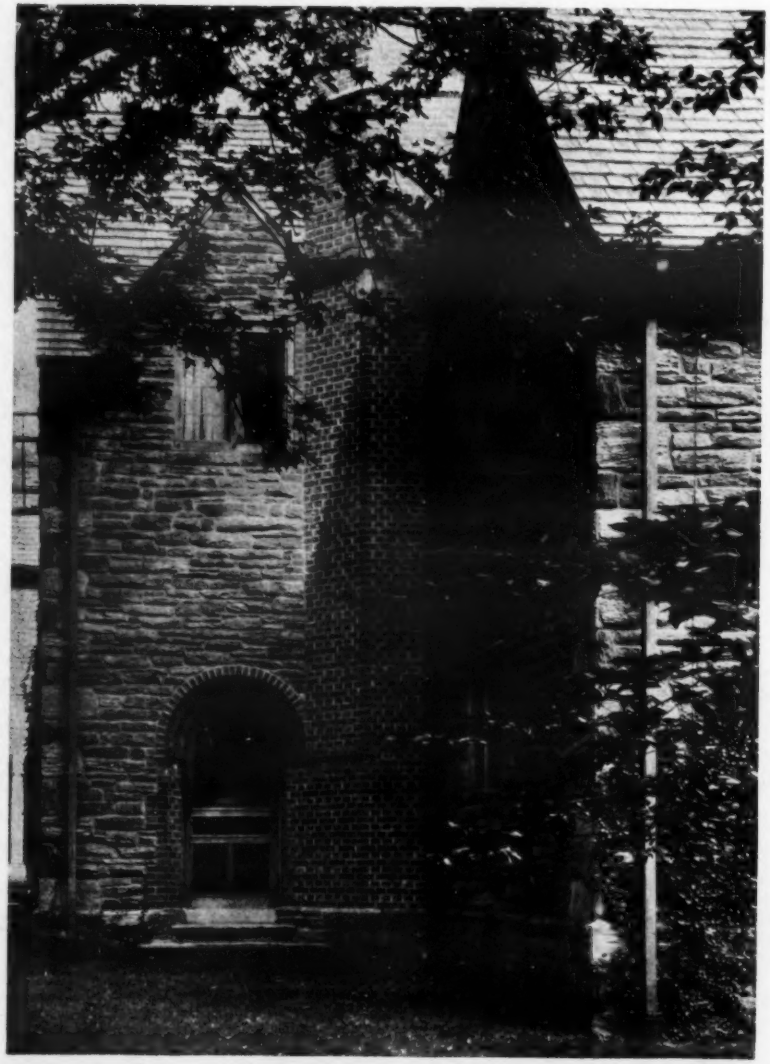
EDMUND B. GILCHRIST, ARCHITECT

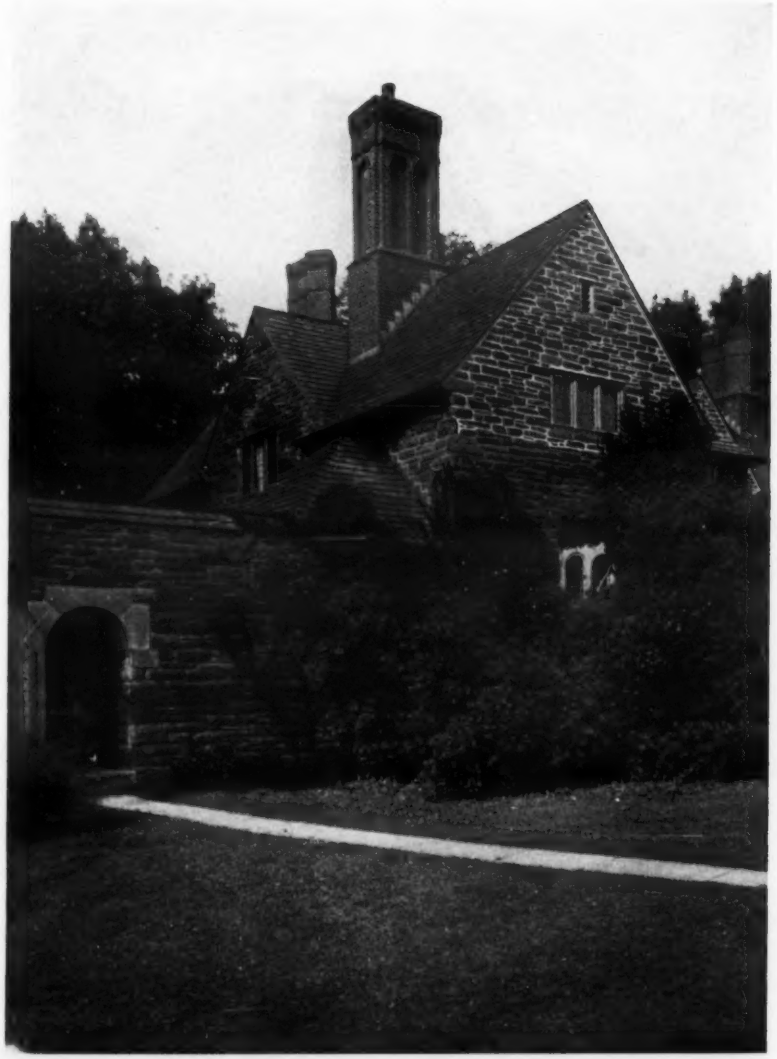
THIS house is a good and interesting example of the ledge stone work that is to be found in suburban Philadelphia. This stone, in most cases taken from the site, weathers beautifully. The masonry joints are in this instance raked.

The roof is covered with split wood shingles. The stone trim wherever used is Indiana limestone. In the interior the trim and floors are of oak.

The metal casement windows are set in unfinished oak frames pinned together with wooden pins.

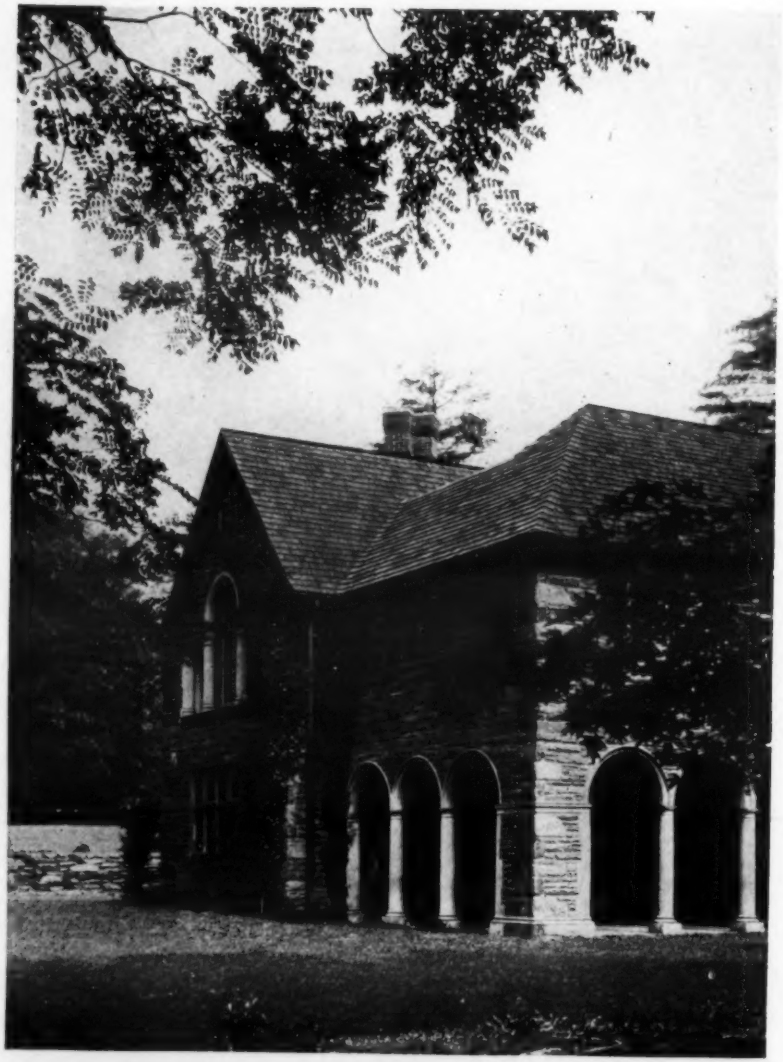
This house was built in 1913, before the war, at a cost per cubic foot of 20c.





HOUSE OF WM. M. C. KIMBER, GERMANTOWN, PHILADELPHIA, PA.

EDMUND B. GILCHRIST, ARCHITECT



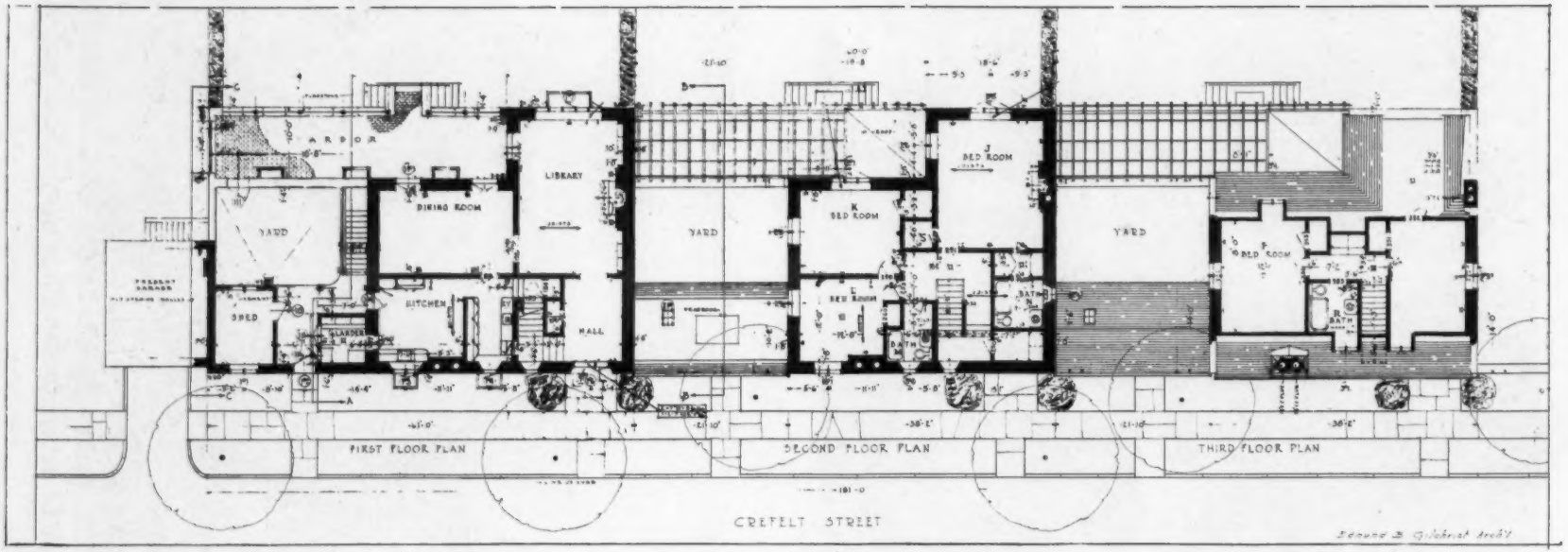
HOUSE OF WM. M. C. KIMBER, GERMANTOWN, PHILADELPHIA, PA.

EDMUND B. GILCHRIST, ARCHITECT

GROUP OF HOUSES ON CREFELT STREET, ST. MARTIN'S, PA.

EDMUND B. GILCHRIST, ARCHITECT

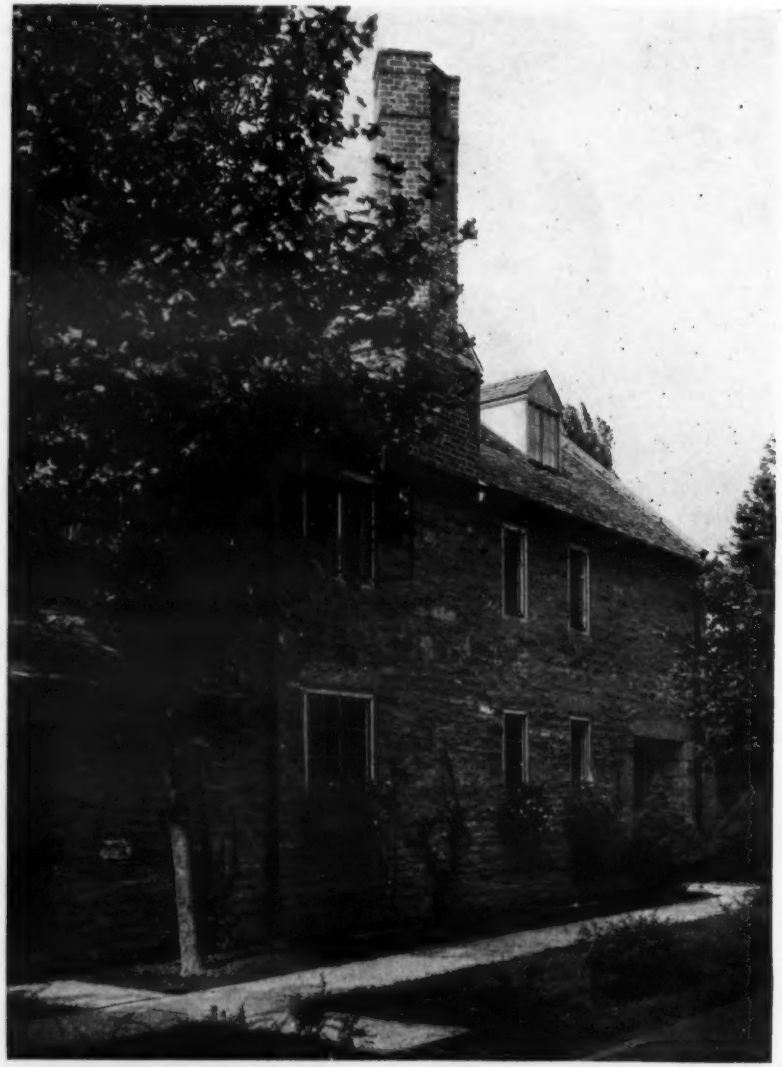
(Plan and description on back)



GROUP OF HOUSES ON CREFELT STREET, ST. MARTIN'S, PA.

EDMUND B. GILCHRIST, ARCHITECT

Exterior walls are of ledge stone, with raked joints. Casements are metal, set in oak frames, left to weather. Exterior trim is limestone. Cost per cubic foot, 55c.



DETAILS OF A GROUP OF HOUSES ON CREFELT STREET, ST. MARTIN'S, PA.

EDMUND B. GILCHRIST, ARCHITECT

ENGINEERING *and* CONSTRUCTION

FIG. 1. INTERIOR OF EASTMAN THEATRE, ROCHESTER, N. Y.

GORDON AND KAELBER, ARCHITECTS—McKIM, MEAD AND WHITE, ASSOCIATE ARCHITECTS

ACOUSTICS *of the* EASTMAN THEATRE, ROCHESTER, N. Y.

BY F. R. WATSON, *University of Illinois*

THE ability to design a predetermined acoustical effect in an auditorium is the result of the advance made in the science of acoustics within the past thirty years. Heretofore satisfactory results have been secured principally by luck in conjunction with guess. Professor Watson's recital of the steps taken correctly to design the Eastman Theatre, Rochester, N. Y., makes clear the value of a scientific consideration of this essential feature of such structures. It is apparent that a co-operation between the architect and the acoustician results in an assured success. The articles in THE AMERICAN ARCHITECT *of February 28, June 6, and June 20, 1923, describe the architectural, heating, ventilating, soundproofing, electrical, and illuminating features of the Eastman Theatre and with the following article complete a description of the essential features of this fine structure.—The Editors.*

THE acoustics of auditoriums, up to within the past few years, has been largely a matter of chance. This was because the knowledge of the subject was extremely vague, and architects had no reliable information for guidance. About 1895, Professor Wallace Sabine of Harvard University inaugurated a general investigation of the subject and succeeded in establishing fundamental laws. Because of his work and later investigations, it is now possible to design an auditorium so as to insure good acoustics, or to correct a faulty one with confidence about the outcome.

The Eastman Theatre presents a notable example of acoustic design. Mr. George Eastman was desirous of securing an auditorium that would be as perfect as possible and spared no expense to accomplish his object. His conception of a successful auditorium was one which combined

beauty and comfort, good sight lines and perfection in lighting, heating, ventilating and acoustics. An excellent opportunity was thus afforded to apply the principles of acoustics of auditoriums as far as they were developed at that time and, by means of the results obtained, to extend the knowledge of the subject. The purpose of this article is to describe the conditions under which the acoustic design of the theatre was formulated and set forth the results obtained, together with some of the attendant later developments. In solving the problems presented, the writer was very fortunate in having associated with him, Professor James M. White, Supervising Architect of the University of Illinois.

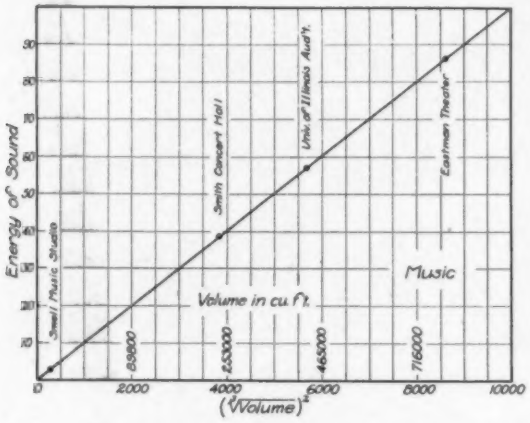


FIG. 2. SIZE OF AUDITORIUM FOR DIFFERENT SOURCES OF SOUND

When designing a new auditorium, it is usually customary to study existing halls in order that advantage may be taken of the information and experience thus afforded. This procedure was followed in designing the acoustics of the Eastman Theatre. There were a number of notable concert halls, particularly the Boston Music Hall and the Leipsic Gewandhaus which had been studied and described by Sabine, and these presented a number of features for guidance in the proposed auditorium. While such examples are suggestive, it is not always possible or desirable to attempt to duplicate them. Each new auditorium usually has restricting features because of the physical conditions to be met, and also because the architect and builder have creative ideas that they desire to see fulfilled. Thus, in the case of the Eastman Theatre, a perfect concert hall was desired, but which also should be perfect for the production of motion pictures. Obviously, to secure these results it was necessary to compromise among the various requirements; an accomplishment that was admirably handled by the architects, Messrs. Gordon and Kaelber.

The shape of the lot selected for the building was irregular, so that the plan of the auditorium best suited to conform to this condition was not rectangular but somewhat like a short megaphone with the stage at the smaller end. Also for architectural design and decorative effect, the ceiling was to be made dome shaped with coffers. Finally, to add to the physical comfort of patrons of the theatre, it was decided to use upholstered seats. With these moderate restrictions, the acoustic design was formulated.

One of the first features to be considered was the size of the room that would give the best acoustic effect for music, because Mr. Eastman desired the hall to be adapted primarily for concerts. The chief source of sound to be considered were choruses, pipe organ and orchestra music. To decide this question of size, a study was made of existing concert halls and the data thus obtained was put in the form of a curve (Fig. 2).* This curve, which is based on the theory of the acoustics of auditoriums, indicates that the Eastman Theatre should have a volume of about 800,000 cu. ft. properly to accommodate an orchestra of about 80 instruments. It was assumed that only a small number of brass instruments would be included in the orchestra, otherwise the sound would be too intense. A larger or smaller number of instruments than 80 could be used;—for instance, a soloist, or an orchestra with considerable intensity, should render music with pleasing results. This wide variation in the intensity of sound is explained by the insensitiveness of the ear to changes in intensity; that is, the ear can perceive comfortably the faint tones of a violin and also the music of a brass band, which is very much more intense than the violin. To get the recommended size, the volume of the Eastman Theatre was increased over the original plans by raising the ceiling nine feet.

Another primary feature that came up for consideration was the shape of the room. Echoes are formed in many auditoriums unless precautions are taken to arrange the interior surfaces so as to avoid this defect. The domed ceiling of the Eastman Theatre was therefore designed to be very shallow so that it would produce only a moderate concentration of sound. Furthermore, the coffers were specially arranged; each one with a rosette of considerable size at the center. To guard further against possible echoes, a number of the coffers, purposely selected at random, were padded with thick hair felt so as to modify the regular reflection of sound from the ceiling and increase the interference. The flaring side walls of the auditorium were not objectionable, but appeared beneficial in reflecting sound to rear seats. The depth of coffers, to be effective acoustically, should

*Fig. 14, *"Acoustics of Buildings,"* page 33.

be comparable with the wave length of the sound being reflected. For instance, for an average sound, the depth should be about nine inches. Small irregularities on the surface, such as rough plastering, have practically no effect and the wall reflects sound waves almost as perfectly as a polished mirror does light waves.

The arrangement of the balcony was studied to obtain, as far as possible, an equable distribution of sound, particularly for the rear seats where

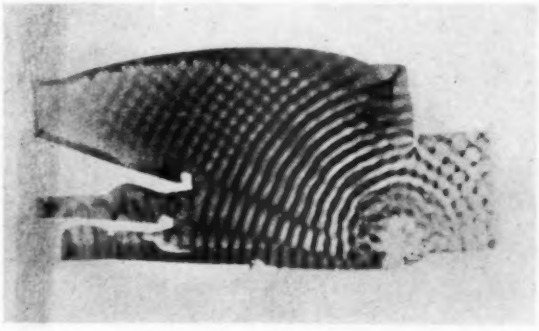


FIG. 3. PHOTOGRAPH INDICATING HOW SOUND WAVES ACT IN AN AUDITORIUM

auditors would be a considerable distance from the stage. In securing this result, efficient aids were found in the sounds reflected from the ceiling and side walls. The effect of the ceiling was studied by means of a laboratory experiment. A thin metal strip was bent so as to duplicate in miniature the vertical cross section of the theatre (Fig. 3).* This was laid horizontally in a tank of shallow water and waves were generated by puffs of air directed against the water surface. Periodic flashes of light passed upward through the glass bottom of the tank and cast shadows of the wave on a screen. Photographs and moving pictures were taken of the waves so as to predict the action of sound in the Eastman Theatre.

The contemplated use of a mezzanine floor was much more uncertain in its probable acoustic outcome than the balcony because the opening into this compartment by which the sound could enter was necessarily limited in cross section and there was practically no opportunity for reflection from the ceiling to reinforce the intensity at the rear seats. In spite of this unfavorable condition, music can be heard comfortably, even in seats in the lobby at the rear of this section. It is thought that the sound reflected from the slightly curved side walls helped in producing this acceptable result.

In addition to the decisions affecting the size and shape of the room, a third, and perhaps more important, feature was investigated,—namely, the amount and placement of sound-absorbing materials. This latter feature came up for consideration in a variety of ways as the construction of the hall progressed. The writer had no reliable guidance at the time for the amount of absorbent needed to give the best effect in an auditorium as large as the Eastman Theatre. Accordingly, a study was made of a number of auditoriums to develop a relation that could be applied for halls of any volume. Measurements taken with a special organ pipe in a number of halls in Boston, New York, Detroit and Chicago, gave data that was incorporated in a formula, and this was applied to the Eastman Theatre.

The formula in question is shown in the curves of Fig. 4,* where the time taken for a standard sound to die out is plotted against the cube root of the volume of auditoriums of different size. Three curves are given to show the effect of the audience.

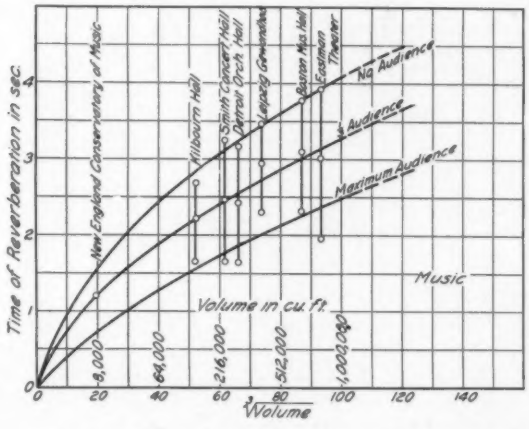


FIG. 4. TIME OF REVERBERATION FOR HALLS OF DIFFERENT SIZE

According to this curve, the Eastman Theatre should have a time of reverberation of about 3 seconds when one-third audience is present. With this value, calculations made from Sabine's formula indicated that about 10,000 "units" of sound absorption would be needed in the room to bring about the result sought. A study of the absorbing articles in the room showed that the upholstered seats and heavy carpets furnished a considerable part of the needed absorption. These, with the addition of about 1,500 sq. ft. of hair felt were deemed sufficient for the purpose

The outcome obtained on the completion of the theatre appears to justify the procedure in designing the acoustics. A variety of programs, varying from singers and instrumental soloists to quartets, orchestras and pipe organ music, has been given with approved results. It has also been used suc-

*Fig. 5. "Acoustics of Buildings," Page 12.

*Fig. 12, "Acoustics of Buildings, page 30.

cessfully for speaking events for which the sound intensities are usually less than for music.

Since the completion of the theatre, the writer has modified the curves for the determination of the reverberation in rooms. For instance, the curves in Fig. 4 have been straightened to give a more reasonable time for very small rooms (Fig. 5).* Later, this information was transformed into a more useful set of curves that give directly the amount of material needed in a room of any

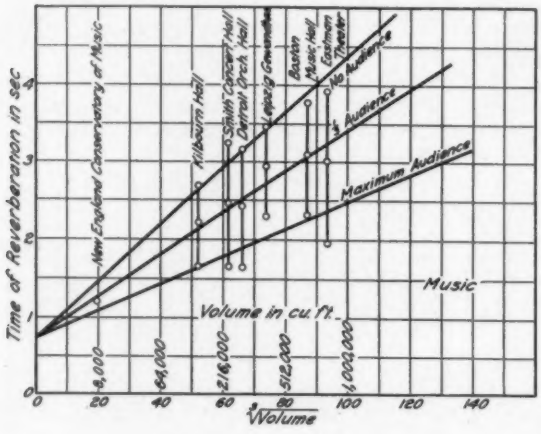


FIG. 5. TIME OF REVERBERATION FOR HALLS OF VARYING SIZE

given size to assure good acoustics (Fig. 6).** This important question of the optimum amount of material needed in a room for best acoustic effect is not yet definitely settled. Several theories have been set forth and it is hoped that a satisfactory agreement can be reached so as to set up standard recommendations for guidance.

A few concluding remarks may be made concerning the Eastman Theatre. This auditorium appears to be satisfactory from the acoustic standpoint. This, however, does not mean that there is nothing more to be learned. For instance, a study of the acoustics of this room from the standpoint of the psychology of speech and hearing should yield some valuable information. A study of the absorption of sound over the range of pitches usually met with in music and speech should give additional information. The intensity of sound given by various instruments and voices for a variety of sounds would be a third fruitful source of investigation.

The acoustics of rooms is a subject receiving more and more attention, because it is being realized more clearly that the effectiveness of auditoriums is dependent on the perfection of a number of features, of which the acoustics is one. Some church auditoriums, for instance, impress visitors at once as being conducive to worship, because of having a relatively short time of reverberation, but for concert organ music a longer period of reverberation is required and may be obtained by increasing the volume of the room or using less sound absorbent.

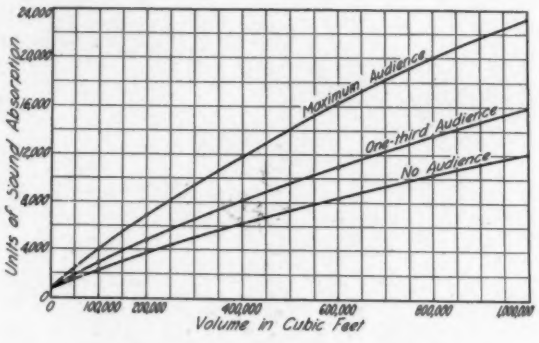


FIG. 6. AMOUNT OF SOUND ABSORBENT NEEDED FOR DIFFERENT SIZED ROOMS

Many auditoriums have been successful acoustically by chance, though only a few have been designed with a knowledge that they would be satisfactory. The Eastman Theatre is in the latter group and it will exert a wide influence in establishing confidence in the results that can be attained by the comparatively recent developments of the science of acoustics.

*Journ. Franklin Institute, July, 1924, pp. 73-83.

**The Architectural Forum, April, 1924.

SUBWAYS TO STORES

IN New York there are subways communicating with its great stores, which are found to be of great utility, comments *The Architect,* London. This system may, if the County Council sanction it, be introduced into London in connection with the rebuilding scheme of Messrs. Swan & Edgar's new premises at Piccadilly Circus. The Westminster City Council has approved plans by which one of the seven subways at the rebuilt Piccadilly Circus will communicate with the basement of Messrs. Swan & Edgar's premises, and this now only requires the authorization of the London County Council. If the proposals for underground shops beneath the Circus are carried out there may be as much shopping done under as over ground, and we shall look forward with much interest to details of the new proposals, which have to meet the compound difficulties of traffic and of commerce. But more important even than these is the larger question of the arrangement of shops in two or even more stages, to which we have previously referred.

The INSULATION *of* DWELLINGS *and the* CONSERVATION *of* HEAT

PEOPLE are becoming aware of the fact that many things are available which make life more agreeable. When conscious of these better conditions it is but natural and right that they should demand them. The building is the most intimate material thing with which we come in contact and at the same time one of the most essential and it affects in some degree every element of our physiological make-up as well as our mental condition. For this reason, it should be the constant study of architects to understand these things and to provide means in buildings for the betterment of life.

In this, architects should lead rather than wait for a demand from their clients or one stimulated by commercial interests. It is true that these interests are animated primarily by a hope for profits, knowing that profits accrue from producing those things which bring comfort and enjoyment to people. When an element of building construction makes more pleasant and healthful living conditions and at the same time makes possible decided economies in the cost of operation, such a thing has a double and powerful appeal to the building owner. This places the thing in the class of necessities.

Among the things which are conducive to physical comfort, health and economy in building costs and subsequent operation, is insulation. With the development of the science of insulation to its present state of perfection, there is a growing demand for its use, to which architects must give attention.

The climate of the United States is such that extremes of temperature must be endured or people must move with the seasons from one place to another to find relief. Perhaps it was a fatalistic acquiescence to these conditions of climate that caused us to build houses without the intention of making them suitable and agreeable habitations in all seasons of the year. We have learned to produce conditions contrary to the state of the elements. By installing systems for heating, ventilating and air conditioning a specified condition of temperature, air and humidity can be produced and maintained regardless of the conditions outside of the building.

It is by mechanical means that the natural law of equalization of temperature is made ineffective. This is accomplished by providing a suitable barrier between the enclosed and exterior spaces. The rate of the equalization of temperature, resulting from the transmission of heat through the walls surrounding the enclosed space, depends on the physical properties of the wall materials and the difference between the interior and exterior temperatures.

The temperature of a room is modified by two things: the transmission of heat through the walls and by the infiltration of air through the joints about windows and doors and cracks or crevices in the walls and ceilings. Infiltration is prevented by the use of any dense material which covers the cracks and crevices. Sheet metal, glass, compact building papers, metal weatherstrips and caulking are excellent barriers to infiltration but they are worthless as insulation.

Insulating material possesses two qualities which are of almost equal importance. The density of the material has a direct influence on its effectiveness. It is characteristic that a light, cellulated substance offers greater resistance to heat transmission than a heavy, dense substance as shown by comparing wood and sheet iron. Water is one of the best known heat transmitting media and it follows that the insulating value of a material that is saturated or even carrying a high percentage of moisture, will have its insulating resistance greatly reduced. The less hygroscopic the material, the greater its insulating value. These two qualities should be the controlling factors in the selection of insulation. Durability and the ability to maintain its shape and structural integrity and resistance to fire are highly desirable properties of good insulating material.

In exterior walls, it is desirable to place the insulation on the inner face so that it is removed as far as possible from rain and snow. Some kinds of insulation are so constituted that plastering can be satisfactorily and permanently applied directly to it. The exterior of the wall should be as impervious as possible, which is secured by the use of brick, stone, terra cotta or wood, that is kept well covered with good paint.

In dwelling houses, the attic presents an important problem. The attic is warmed in the winter by the heat transmitted or leaking through the ceiling. This heat ultimately passes out through the roof. In the summer time the attic becomes heated by the sun and causes the upper story of the house to be much warmer than the lower stories. This causes both a wasteful and uncomfortable condition. The better mode of protection would be to insulate the roof and prevent heat transmission through it and also to provide the attic floor space with a tight wooden flooring laid over at least two plies of building paper. It will require more material to insulate the roof than the ceiling below the attic but the benefits obtained are well worth the cost. If the insulation of the

attic is confined to the ceiling below it, then the attic space is lost as an intermediate buffer between the rooms below it and the exterior air.

Definite information is obtainable as to the relative merits of the various insulating materials. The methods of testing are well standardized and tests made by disinterested investigators, such as the Bureau of Standards, are reliable. Probably the most comprehensive assembling of insulation data is found in the "Report of the Insulation Committee."* The committee sponsoring this report is made up of representatives of the Bureau of Standards, the various insulating companies and refrigerating engineers.

The insulation of ice making plants and cold storage warehouses is quite well understood. This is because of the tremendous money values involved in the preservation of perishable products. It is a commercial necessity and naturally receives preferred consideration.

The house owner is now demanding the insulation of houses because he recognizes that its use results in the following advantages.

(1) Comfortable conditions in both cold and hot weather

(2) Better hygienic conditions

(3) A more valuable structure

(4) Saving in the initial cost of heating plant

(5) Saving in furring and lathing when the insulation is of such character that the plastering can be applied directly

(6) Saving the cost of the scratch coat of plaster under conditions noted in (5)

(7) Better fire protection when the material has fire-resistive properties.

(8) Saving in fuel consumption, which under the present high cost of coal and low cost of insulating material, pays for the cost of the insulation in a very short time and also pays large dividends during the occupancy of the house.

There is no great mystery about insulation. By means of a simple formula for determining heat transmission through walls of different constructions and transmission coefficient data of the various construction and insulating materials, the transmission value of the wall is easily determined. This formula was published in THE AMERICAN ARCHITECT of May 29, 1918, and reprinted from Bulletin 102, Engineering Experiment Station, University of Illinois. This formula breaks down any wall into its component parts and builds up the transmission coefficient part by part. It is generally recognized as a logical and orderly method of measuring the heat transmitting value of the walls.

Due consideration must be given to the proper weatherstripping and caulking of doors and windows.

The next great advance in dwelling construction is the universal application of insulation. It is justified from every viewpoint.

*Published by the American Society of Refrigerating Engineers, 35 Warren St., New York City.

CAUSE OF DECAY OF BUILDINGS

IN a paper recently read to the Royal Society of Edinburgh, A. P. Laurie, D.Sc., Principal of Heriot-Watt College, Edinburgh, dealt with the preservation of buildings from decay, states a recent issue of *The Builder*, London. He described the results of a large number of analyses of decaying stone in various ancient buildings, and also of experiments on the saturation of stone with salt solutions. The general conclusion, he said, was that the principal cause of the rapid decay of stone in modern buildings was the crystallization of calcium sulphate within the stone. Probably the length of life of buildings, built of limestone or containing calcite in the stone, would be considerably increased if they were periodically washed in hot weather with a view to the solution and crystallization of the sulphate of lime on the outside of the stone, and there was reason to believe that in selecting a limestone two conditions should be observed—its resistance to acid attack, and the rapidity with which it absorbed water and hot water again on evaporation, stone which absorbed and lost water quickly apparently resisting the action due to calcium sulphate better owing to its removal from the stone. Sandstones should be tested for their susceptibility to acid attack before being used on public buildings in modern cities.

ARCHITECTURE AND HOUSING

IT would be interesting to know to what extent any of the different types of steel houses have been planned under really competent architectural advice and supervision, states *The Builder*, London, in a recent number. Would it not be possible before any final decision to build a great number of these houses is concluded to refer their design to an authoritative body like the R.I.B.A., who could advise as to possible improvements? From the utilitarian character of the appearance of most of them this would not appear to have been the case hitherto. If we must have steel houses, such amelioration of the design as will contribute some quality of architectural fitness may well be considered, lest the country suffer further disfigurement.

EFFECT *of* END CONDITION *of* CYLINDER *on* COMPRESSIVE STRENGTH *of* CONCRETE*

BY HARRISON F. GONNERMAN

Summary and Conclusions

COMPRESSION tests were made at 7 and 28 days, 3 months and 1 year on about 3000 6″ x 12″ concrete cylinders in a study of the influence of the following factors on the reliability of the test results:

(*a*) Position of spherical bearing block
(*b*) Deflection of table of testing machine
(*c*) Material used for capping
(*d*) Condition of capping
(*e*) Molding with uneven base and cover plates
(*f*) Inclination of axis, and top surface

The cylinders were made from 1:7, 1:5, 1:3½ and 1:2 concrete mixed to a relative consistency of 1.10; for a few conditions, tests were made on the 1:3½ mix using relative consistencies 0.90 to 2.00.

The data of the tests were compared and the relative value of the different methods of testing or capping was judged principally by the ratio of the strength obtained for a given method of test to that obtained for the standard method. The mean variation of the tests was used as a measure of the uniformity of the different methods.

The principal conclusions from the tests are:

1. The standard method of molding and capping concrete cylinders with machined base and cover plates gave uniformly high strength equal to or greater than that from any of the other methods.

2. Deflection of the table of the testing machine used was small and had practically no effect on the test results.

3. For reliable results the use of the adjustable block with spherical bearing surfaces was found to be essential. A spherical bearing block with hardened steel balls between the spherical surfaces gave essentially the same results as the plain spherical block.

4. No difference in results was found when spherical bearing blocks were used in the following positions:

(*a*) On top of cylinder
(*b*) Inverted on top of cylinder
(*c*) Beneath the cylinder
(*d*) Both on top and beneath the cylinder

5. Small errors (¼″ or less) in centering the bearing block on the cylinder had little or no effect on the test results. An error of ½″ in setting, gave strength-ratios of about 90 per cent for 1:5 and 1:3½ concrete.

6. Cylinders molded on a plane cast iron base and with top trowelled smooth, showed the following results when tested as indicated:

(*a*) With thin caps of gypsum or mixtures of cement and gypsum, the results were essentially the same as those obtained for the standard method of capping.

(*b*) Without bedding, the strength-ratios obtained were about 95 per cent for 1:7 concrete, 94 per cent for 1:5 concrete and 80 per cent for 1:3½ concrete.

(*c*) With sheet materials between top of cylinder and the spherical block, the strength-ratios obtained were less than 100 per cent for all of the materials used.

(*d*) For the sheet materials, the best results were obtained with Beaver Board, which gave strength-ratios of about 100 per cent for 1:7 and 1:5 concrete and about 90 per cent for 1:3½ concrete.

(*e*) For white pine board, mill board and leather, the strength-ratios ranged between those found for Beaver Board and those found for no bedding (see (*b*) above).

(*f*) For the other sheet materials, blotting paper, sheet lead and rubber, the strength-ratios were less than those found for no bedding.

(*g*) The lowest strength-ratios were found for the 1-16″ sheet rubber; they were about 80 per cent for 1:7, 70 per cent for 1:5 and 50 per cent for 1:3½ concrete.

7. Cylinders made and capped by the standard method, tested with a ½″ segment (circular segment of ½″ mid-ordinate) of the cap removed, gave strength-ratios slightly less than 100 per cent. When a 1″ segment was removed the strength-ratios obtained were 100 per cent for 1:7 concrete, about 95 per cent for 1:5 concrete and 90 per cent for 1:3½ concrete. The removal of a 2″ segment gave strength-ratios of 90, 80, and 65 for the three concretes.

When the segments removed were replaced with 1:1 gypsum and cement mortar 3 hours before test, the strength-ratios were about 100 per cent except for the 2″ segment, which showed strength-ratios of from 95 to 90 per cent.

8. Cylinders with plane parallel ends but with axes inclined, gave the same strength as standard cylinders for an inclination of ¼″ in 12″ and

*From Bulletin 14, Structural Materials Research Laboratory, Lewis Institute, Chicago, authorized Reprint from the Copyrighted Proceedings of the American Society for Testing Materials, Vol. 24, Part II, 1924.

strength-ratios of about 92 per cent for an inclination of ½″ in 12″.

9. Cylinders with the top surface inclined showed strength-ratios of about 100 per cent for an inclination of ¼″ in 6″ and of about 95 per cent for an inclination of ½″ in 6″.

10. Cylinders molded with machined cast-iron plates so as to give convex ends and tested without bedding, gave pronounced reductions in strength even for a small amount of convexity. The reduction in strength increased with increase in convexity and with increase in the richness of the mix.

For a convexity of 0.01″ the 1:3½ and 1:2 mixes showed strength-ratios of about 65 per cent and for a convexity of 0.05″, about 40 per cent. For the 1:7 and 1:5 mixes the corresponding strength-ratios were about 80 and 55 per cent.

When tested with Beaver Board sheets at both top and bottom, the reductions in strength were about half as great as when tested without bedding.

The use of gypsum bedding for one group of cylinders with bases convex 0.05″ gave strength-ratios of about 90 per cent.

11. The effect of concave ends was small compared to that of convex ends.

12. Sheared steel plates 8″ square by ¼″ thick, from warehouse stock, showed deviations from a true plane of as much as 0.012″. Cylinders molded with these plates as bases and covers so as to give convex ends, gave results comparable with those from cylinders having the same convexity similarly made with machined cast iron plates (see 10 above).

13. Tests with concrete of different consistencies using cylinders with ends convex about 0.01″ showed similar results for all consistencies. The typical relation of strength to water-cement ratio was found.

14. The different conditions of test did not show a marked difference in the uniformity of the individual results. The average mean variation of the 28-day tests ranged from 4.1 per cent for one group of the standards to a maximum of 10.9 per cent for the cylinders tested without an adjustable bearing block.

15. Finally, the most important conclusion from these tests is that great care must be exercised when preparing cylinders for test in order to secure ends which are true planes. When the standard method of capping with plane cover plates cannot be followed, the cylinder should be trowelled smooth and bedded with a thin layer of gypsum or a mixture of gypsum and cement 3 to 6 hours before test. The cylinders should always be molded on a plane surface.

RECOMMENDED LIVE FLOOR LOADS

THE report of the Building Code Committee, U. S. Department of Commerce*, entitled "Minimum Live Loads Allowable for Use in Design of Buildings" has been printed. There is a wide difference in the code requirements of 109 representative American cities. This would be an amusing condition but for the fact that it discloses a lack of co-ordination and resultant waste which well illustrates the want of interest in one of our most important industries — the building industry.

A variation of 100 per cent is quite common in existing codes and disparities of 200 and 300 per cent are found. This is discreditable to the architectural and engineering professions. Differences of opinion are but natural, even in an exact science like building designing but there is no valid reason seriously to question the recommendations of the Committee.

The requirements are brief and simpler of application than those of many building codes. The live load on floor space used for residential purposes in general is placed at 40 pounds per square foot. For office space and assembly places not subject to standing crowds 50 pounds are specified, and for other floor space in buildings for human occupancy the minimum limit is 100 pounds. Industrial or commercial buildings are to be designed primarily for the proposed occupancy and data are given in the appendix by which loads characteristic of different occupancies may be approximated. Roof and wind load requirements are somewhat less than present code practice, with emphasis on the influence of local conditions. Allowance is required in certain buildings for movable partition loads and floor-to-floor reduction is permitted in transmitting the assumed live loads in high buildings to the footings.

The foolish restrictions of many codes should receive the prompt and united attention of architects, engineers and contractors to the end that a uniform practice be established. Under the chairmanship of Ira H. Woolson, the Committee has done a good piece of constructive work and an appreciation of it can best be evidenced by a speedy adoption of its recommendations. This can only be accomplished by the united action of those most interested including architects, engineers, constructors, realtors and investment bankers; unfortunately the vast majority of interested persons, the owners, are not organized for effective action.

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The LAW *as to* ARCHITECTURE

BY CLINTON H. BLAKE, Jr., of the New York Bar

AN ARCHITECT has written as follows:

"May I be permitted to submit the following regarding contracts between architect and owner which will, I believe, be of interest to architects who are well known to be lax in respect to same.

"The architect having received verbal instructions from a building committee to prepare sketches for a building did so and upon the acceptance of same and the receipt of instructions to proceed with working drawings sent the building committee copies of the standard contract of The American Institute of Architects for their signature. The signing of same was delayed while various members of the committee perused it—in the meantime payment was made to the architect for preliminary studies and work commenced upon working drawings.

"One or two members of the building committee objected to clauses No. 4 and No. 5 of the contract relative respectively to (No. 4) higher commission fee to architect should work be undertaken under separate contracts and (No. 5) additional payment of architect in case of extra services and expense caused to him by changes, delays, insolvency of contractor, etc. They were sustained to some extent by the committee's attorney who said, however, that the contract was a standard form used largely by architects throughout the country.

"Several members of the committee were former clients of the architect and work with them had been performed to their complete satisfaction under the standard contract. Rather than have any unnecessary friction, the architect agreed to eliminate clauses No. 4 and No. 5 from the contract, no other changes or additions being made. The work was carried out and completed to the entire satisfaction of all concerned.

"If part of the work, however, should have been undertaken under separate contracts or should there have been changes, delays, insolvency, etc., causing the architect undue expense, would he have been entitled to collect for same in the absence of these clauses from the contract?

"The architect could have shown that he invariably used the standard contract without change and had never before omitted the clauses in question. No addition was made to the contract explaining these omissions nor was the architect asked to agree that he would not make any additional charge for expense so incurred. The dissenting members of the committee apparently were content that the clauses be omitted."

THE problem which the foregoing letter presents is one with which the practicing architect is often confronted. An architect, like any professional man, dislikes to have a client dissatisfied, and in many cases is willing to make liberal concessions in order that the client may be entirely happy. Where this is done, however, the architect should use sufficient forethought to be sure of the concessions made and of his final status under the agreement finally arrived at. The case presented by this letter is an excellent illustration of how an architect may, in an endeavor to satisfy a client, pursue a course which is calculated to waive the rights of the architect to a much greater extent than he has intended that they shall be waived.

The letter does not state whether the objecting members of the building committee took the position that there should be no extra charge where the work was let under separate contracts and no additional charge for extra services caused by changes, delays, the insolvency of the contractor and the like. For the purpose of this discussion, we may safely assume, however, I think, that this was the case; that in objecting to clauses No. 4 and No. 5 of the standard contract, they objected not merely to the wording of these clauses, but to the substance of their provisions.

The situation presented, therefore, amounts to this:

The architect submits a contract which provides specifically that he shall be paid additional compensation where the work is let under separate contracts and where additional compensation for extra services, etc., is required. The client (in this case acting through the building committee) objects to these provisions for additional compensation. The architect thereupon strikes out these provisions from the contract, and the contract as signed omits them. The inevitable inference under these conditions is that the architect has at least impliedly agreed to eliminate from his compensation any items for extra services based on the letting of the work under separate contracts or extra services of the character here involved. If the contract, in the first instance, had not included this provision, the architect might conceivably have been in a position to claim extra compensation on these items upon showing that this was the custom of the profession and that the client had knowledge of the existence of such a custom. Where, however, as in this instance, the client specifically objects to the provisions for extra compensation and the architect acquiesces in the objection by eliminating them, a court or jury may well conclude that the parties have thoroughly considered these points and have agreed that there shall be no extra compensation with respect to them, irrespective of the existence of any professional custom to the contrary and irrespective of any knowledge which the client may have of such a custom.

The fact that the client had had previous dealings with the architect under the standard form of contract, without change and including clauses No. 4 and No. 5, would not aid the architect under these conditions. On the contrary, the fact that the client, having theretofore dealt with the architect on the basis of the unchanged contract, has in the present case raised these issues, would emphasize more clearly the unwillingness of the client to proceed under the contract as heretofore, without change, and the implied agreement on the part of the architect to acquiesce in the client's desires in this connection.

It is true that, in this case, as the letter states, the contract does not undertake to explain the omission of the clauses, and the architect was not asked to agree affirmatively that he would make no additional charge for extra work or for the lettering of the work under separate contracts. This leaves him, of course, in a stronger position

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than if he stated that he would not make any such additional charges. Such an agreement would naturally have been conclusive against him. I do not think that the mere failure of the client, however, to require from the architect an affirmative agreement not to make the extra charges, is sufficient to nullify the effect of the agreement by the architect to eliminate the clauses in question.

Of course, if, when the clauses were omitted, the architect had stated in substance that, while he was willing to take them out of the contract, he wished it understood that his doing so was without prejudice to any rights which he might have for extra compensation under the law or the practice of the profession, he might be able to counteract the effect of the omission of the provisions. This would be, as a legal proposition, however, an extremely difficult thing for him to do. Where parties meet and discuss the terms of a proposed agreement and, after the discussion has been had, the agreement is reduced to writing, all the conversation which they may have had with respect to the contract is, as I have had occasion to point out heretofore, considered at law as merged in the written contract. This means that the court will consider that, having discussed the situation fully and then having reduced the agreement to writing, the writing must be taken to be the final and full understanding of the parties.

In the present instance, the architect, I judge, never agreed or intended to agree that he would not be entitled to extra compensation under the conditions specified in clauses No. 4 and No. 5 of the standard contract. If this was the case, however, and he desired to preserve his rights and not to waive them in any respect, the contract should have contained some provision eliminating the inference to be drawn from the omission of the clauses as first submitted, or at the least should have been accompanied by a letter stating that, while he had redrafted the agreement to meet the wishes of two of the members of the committee, it was understood that the fact that the contract did not include articles No. 4 and No. 5 was not to be taken as an agreement on his part to waive additional compensation.

As I have so often said, a written contract, as distinguished from the absence of any agreement or a verbal agreement, is of prime importance. In some cases, however, it were better to have no contract or agreement of any kind, than to have a contract so drafted or executed under such conditions, that it raises an implication which is not in accordance with the architect's intention. If the architect here, when the contract was objected to, stated, for example, that he could not enter into the contract, unless these provisions were inserted and that he would prefer to continue with the work without a contract, but with the understanding that he should be paid in accordance with the usual custom and charges of the profession and of The American Institute of Architects, he would be in a position to claim on *quantum meruit* the reasonable value of the services which he has rendered, and to show, in proof of such reasonable value, the prevailing custom and the rules and schedule of charges of the Institute.

The architect in question might be able to convince a court or jury that the omission of clauses No. 4 and No. 5 was negative in its effect and did not carry any positive inference with respect to waiving the substance of these clauses. I believe that he would have great difficulty, however, in sustaining this position under the circumstances which he submits, and that the chances of a decision favorable to him would be largely decreased, as a result of the course which he has followed and the inferences to be drawn from it.

It is the desire of all of us that our clients be satisfied and that we retain their good will in any work which we may perform for them. No professional man, however, can afford, in an endeavor to satisfy his client, to pursue a course which will estop him from asserting rights which he desires to reserve. If he is willing to waive his usual custom and charges in a given case, he should do so with a clear understanding of the effect of the action which he may take and not place himself in such a position that he will be precluded by his own act from asserting rights to which he is entitled and which he has at no time intended to abandon.

He must remember, in a word, that contracts may be implied as well as express, and that in the case of an implied contract, the intention of the parties may be deduced from all the circumstances involved and from the course which each of them has pursued. He will do well, also, to bear in mind the fact that a contract under the law is usually construed most stringently against the party who has prepared it, and that in the case of ambiguity or an equal balance of the probabilities as to the intentions of the parties, the contract prepared by the architect will be construed in favor of the client, rather than in favor of its author.

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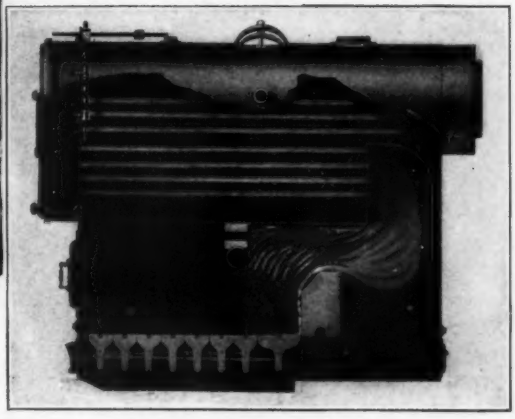

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COMPETITION FOR A MODEL KITCHEN

THE attention of architects, draftsmen and designers is directed to the announcement of the Delco-Light Company, Dayton, Ohio, of a competition for the design of a model kitchen. Substantial prizes are offered, ranging from $500 to $25. Mr. H. J. Williams of the architectural firm of Schenck & Williams will act as professional advisor. The competition will close on October 27, 1925.

For particulars address the Delco-Light Company, Department Z-13, Dayton, Ohio.

THE INTERNATIONAL EXPOSITION OF MODERN DECORATIVE AND INDUSTRIAL ART, PARIS, 1925

THE increasing interest of American industries in the art movement which is finding expression in the great International Exposition of Modern Decorative and Industrial Art, in Paris, has attracted many delegates who will join in a survey and study of the specialized exhibits to which the exposition is restricted.

As the Exposition comprises those arts which make for beauty in the domestic and personal lives of the people, only those interested in the trades and crafts and the graphic arts, will visit the displays shown in the specially constructed buildings.

The Exposition occupies the Esplanade des Invalides, the Alexandre III Bridge and the Gardens of the Cours la Reine, the entire Grand Palais and the quays of the Seine, from the Concorde to the Alma Bridge. Practically every foreign country is exhibiting artistic products.

That there will be many unique developments presented is assured by the statement in the official program, "Works admitted to the Exposition must show new inspiration and real originality. They must be executed and presented by artisans, artists, manufacturers, who have created the models, and by editors, whose work belongs to modern decorative and industrial art. Reproductions, imitations and counterfeits of ancient styles will be strictly prohibited." This insures the dominance of the modern spirit. This modern movement began some thirty years ago, and the new spirit has extended during the last twenty years so that new characteristics have crept into the designs of many continental countries.

From such resources to which this country is not contributing, fruitful and inspiring ideas and ideals will be brought to our artists and craftsmen which will soon be felt in the elimination of many useless and unbeautiful things which have carried the artistic approval of crude minds which are devoid of taste. It is probable that the reports of this commission will have a far-reaching effect in improving the grace and charm of American life and surroundings.

BETTER HOUSING FOR INTELLECTUAL WORKERS

FOLLOWING his recent inauguration of a movement for better housing for intellectual workers in the United States, Willard Reed Messenger, of New York, announces that the Federation Internationale Du Batiment et Des Travaux Publics, with headquarters in Paris, has accepted his offer of $1000 for three prizes to the winners of an international essay contest on the subject.

The first prize will be $500.00, the second $300.00 and the third $200.00. Citizens of all countries will be allowed to compete. The details of the competition and the judges will be announced later. Hon. Myron T. Herrick, United States Ambassador to France and Willis Booth, President of the International Chamber of Commerce, both of whom are deeply interested in the subject, have been suggested as the American representatives on the committee of judges.

In the letter which contained his offer, Mr. Messenger suggested that the articles, which should be limited to about 5,000 words in length, might deal with architectural or structural features, materials, interior arrangement, equipment, gardens, interior and exterior color schemes, environment and social amenities, economies of production, accessibility, aesthetic features and creation of atmosphere, financing or other pertinent aspects of the subject, together with practical methods of procedure to attain the desired completed results within the means of an average brain worker. Covering such a broad ground, he thought the competition would attract not only engineers, interior decorators and architects, but economists, industrial leaders, authors, journalists, psychologists, college professors, students and intellectual workers generally.

FIND OLD GLORIES AT KISH

NEW excavations at Kish in the recently discovered palace of a "mighty line of Sumerian Kings," who ruled in pre-Babylonian times prior to 3,000 B. C., have revealed additional magnificence possessed by the Sumerian Empire, according to a report received recently from Professor S. Langdon, leader of the Field Museum-Oxford University Mesopotamian expedition, by E. C. Davies, director of the Field Museum, Chicago.

The discoveries range from jewels and ornaments of gold to massive architecture, buttressed fortifications, ruins of drawbridges and clay rattle boxes of children's nurseries, Professor Langdon said. He added that "certainly nothing like the palace in grandeur, age and e x t e n t has been excavated in Mesopotamia."

The PUBLISHERS' PAGE

THE brief description, covering main structural details of houses and other small buildings, which we are endeavoring to supply with each subject illustrated, has been commended by many of our subscribers. A friend in Eureka, Calif., writes us:

"Allow me to congratulate you on taking care of a long-felt want. I refer in particular to your terse comment upon buildings, in which elevations, plans and details are given, and a brief summation of the materials, etc., of construction, date of erection, and *cost per cubic foot.*

"Your description, together with summary, and cost, is identical with the system of cross reference which I have built up in my own practice, and I value it very highly. Formerly, while an illustrated plan was a thing of real interest, it was not left definitely indexed as to cost, etc., in the reader's mind. This situation is now corrected. It will insure continual renewals from your subscribers."

Another subscriber, from the "peninsula," up in Michigan, is also moved to tell us how much he likes this feature. "I notice," he writes, "that you show plans and elevations of buildings, giving cubic costs. I want to congratulate you on making THE AMERICAN ARCHITECT still more valuable. This is a great help." He adds: "Make them all give you these details of costs and materials."

We wish we could, and we take this opportunity to urge upon our friends who give us material the fullest co-operation so that we may continue this much approved service.

Service is today the first consideration. Naturally the editors and publishers of this journal want to give, if possible, a hundred per cent of service. If there is suggested to you any direction in which we can better serve you, tell us and we will see what can be done about it.

* * *

The United States Military Academy at West Point is growing architecturally in a most satisfactory manner. Its fine location on a promontory overlooking the Hudson River affords excellent opportunity for the location of the various buildings of this important national university. The latest addition is the Cadet Hospital, designed by the office of Arnold W. Brunner Associates. Its fine architectural treatment is in keeping with the buildings already located. It will be shown in an early issue.

* * *

In Europe, where everything is old, fifty years is comparatively a short period. In these United States it represents a third of our national life. Methods of illustration that were in use when this journal first appeared, now almost half a century ago are, today, obsolete. In the matter of illustrations, the only method was by architects' drawings reproduced by a zinc process. Photography and photo-engraving processes were in their infancy. To note their progress is interesting as showing the great advance in artistic reproduction during fifty years.

There has been more or less prejudice as to continuing this early method of presentation and that prejudice has robbed the pages of architectural journals of much of its one-time artistic quality.

There never was a time in the history of the profession when more men of artistic ability in architectural rendering were present. Rendering today has become an art comparable with the easel picture.

We shall present in our issue of July 29 an important apartment house group designed by Clifford C. Wendehack. The office sketches have been cleverly drawn by Chester Price. It will be a most artistic and completely satisfactory showing of a dignified architectural composition.

We invite the further submission of preliminary presentation, by means of artistically drawn sketches.

* * *

The Reference List of Business Literature presented in each issue of this journal has been found of considerable value to architects. Requests have been received each month for more than one thousand pieces of literature. This does not include requests made directly to producers.

The system of classification heretofore employed has been that of grouping under material heads. With increased use by architects of the Standard Construction Classification of The American Institute of Architects, it has seemed best to change the method of listing trade literature and to adopt the A. I. A. classification in the Reference List. This change occurs in this issue, and should result in better unification and simplification of the work, as relating to these matters in architects' offices.

* * *

The new stadium at Pasadena, Calif., designed by Myron Hunt, architect, will on its completion be one of the most serviceable structures of its type and with a seating capacity up to 65,000 among the largest stadia in this country. The architectural and engineering problems are of particular interest. There will appear in an early issue a completed preliminary presentation of the Pasadena stadium, accompanied by a descriptive article.

WESTERN FACADE, CATHEDRAL OF SANTIAGO DE COMPOSTELLA